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OFFICIAL REPORT

OF THE

TRANSACTIONS

OF THE

SOUTHERN DENTAL ASSOCIATION.

TWENTY-EIGHTH ANNUAL MEETING.

LIBRARY
HARVARD UNIVERSITY
DENTAL SCHOOL

HELD AT

OLD POINT COMFORT, VA., AUGUST 3, 4, 5, 6,

1897.

MRS. J. M. WALKER, REPORTER.

PHILADELPHIA:
THE S. S. WHITE DENTAL MANUFACTURING COMPANY.
1898.

HARVARD UNIVERSITY
SCHOOL OF DENTAL MEDICINE
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TRANSACTIONS

OF THE

Southern Dental Association.

SESSION OF 1897.

THE Southern Dental Association convened in twenty-eighth annual session at Old Point Comfort, Va., August 3, 1897.

Officers of the Association.—Dr. W. H. Richards, Knoxville, Tenn., President; Dr. E. P. Beadles, Danville, Va., First Vice-President; Dr. A. P. Johnson, Anderson, S. C., Second Vice-President; Dr. F. P. Welch, Pensacola, Fla., Third Vice-President; Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. S. W. Foster, Atlanta, Ga., Recording Secretary.

Executive Committee.—Drs. V. E. Turner, Chairman, Raleigh, N. C.; S. B. Cook, Chattanooga, Tenn.; W. T. Arrington, Memphis, Tenn.; R. K. Luckie, Holly Springs, Miss.; W. R. Clifton, Waco, Tex.; H. E. Beach, Clarksville, Tenn.

The Hygeia Hotel having been selected as headquarters of the Association, the opening session was held in the dancing pavilion of the hotel.

The meeting was called to order at 11 A.M., Tuesday, August 3; the President, Dr. William H. Richards, of Knoxville, Tenn., in the chair.

The meeting was opened by prayer by Dr. J. Hall Moore, Richmond, Va.

Dr. J. V. HALLER, Wytheville, Va., President of the Virginia State Dental Society, then delivered the following address of welcome:

GENTLEMEN OF THE SOUTHERN DENTAL ASSOCIATION:

In behalf of the Virginia Dental Association, it is my pleasure to extend to all and each of you a hearty welcome to our State, and to assure you that the members of your profession who live in this, "the mother of States," have warm hearts and open arms to receive you, and will vie with each other in efforts to make your stay among us pleasant and profitable.

Here at this historic and ideal resort, while the outside world swelters in the heat and turmoils of active life and industry, we trust that you will find that repose which brings with it renewed vigor, activity, and purpose to go forward and upward in achievements for the upbuilding of our noble art, our chosen profession.

We meet here to entertain you; to give you the benefit of aught we have achieved toward the advancement of art, science, and literature; to give freely of the good things vouchsafed to us; to interchange views and experiences.

Banishing all jealousies and rivalries except emulation of the good and true; uniting in pleasant social intercourse; laying our best efforts upon the altar of our common profession, it is a *pleasure* to meet you here; to partake of the inspiration of your achievements; to participate in the successful results of your labors for the advancement of our profession; to be the recipients of your wise counsel and advice; and let me assure you we shall esteem this no small remuneration for our humble, though sincere and earnest, efforts to render your stay among us pleasant and agreeable.

The science of dentistry has made great progress in recent years. It has kept fully abreast of other learned professions. Organized and united effort has shown the same good results in this as in other departments of learning. Your professional brethren of this State appreciate your assistance in elevating the profession to its high standard of to-day.

They are not unmindful of the individual and united efforts of your Association to that end; they recognize the accomplishments of Associations like yours in times past; they are alive to all the questions of geographical position and personal and political kinship which should make our two Associations more closely allied than any others; they look forward always with hope and pride and pleasure to the benefits to our profession of such meet-

ings as we have to-day; they are gratified and pleased with the many personal greetings and reunions of acquaintances long known and well remembered; and this is not the smallest source of enjoyment in their ability to greet you to-day, and to assure you that, for the time being at least, you are one of us.

But while we delight to welcome our brothers; while we delight to meet the friends of days gone by; while we delight to feast upon the sweets of social intercourse and social enjoyment, to give and receive the greetings and encouragements due from one brother to another, let us not overlook the smallest part of our duty to that chosen friend, that *good* friend and brother, our *profession.* The greatest object of our meeting to-day is to seek that which will build up and improve our profession; to seek, to earnestly strive after that knowledge, that information which will add honor, add dignity, add strength to our profession. Let no mark of distinction be too high for our aspirations, if only the benefit and elevation of our profession be the object.

And now, Mr. Chairman and gentlemen, trusting that your sojourn among us may prove both pleasant and profitable, that happy homes may await your safe return, and that at your next annual meeting you may again clasp hands, an unbroken family, as representative of the Virginia Dental Association I give you *a hundred thousand welcomes.*

Dr. W. W. H. THACKSTON, Farmville, Va., responded to the address of welcome as follows:

MR. PRESIDENT AND MEMBERS OF THE DENTAL ASSOCIATION OF VIRGINIA:

In obedience to the order of President William H. Richards, of the Southern Dental Association, and in behalf of the professional organization which has invested him with its highest honors and its most important trusts and responsibilities, I feel pleasure and satisfaction in acknowledging the eloquent and fraternal welcome which has just fallen upon our charmed and listening ears,—a welcome we accept as characteristic of men who are the descendants of Huguenots and cavaliers, and who are the Virginians of to-day.

In behalf of our honored President and his constituency of *representative men* of the South, we thank you, and beg to express

our heartfelt appreciation of your *living*, as well as your traditional, chivalry, kindness, and courtesy.

In the social and professional relations of life there are links and cords that attract and bind us together in ties indissoluble. The heritage of race and blood, the genius, sympathies, tastes, and peculiarities of the South-land people knit them together in a web both strong and imperishable, for we share in common our trials, our disappointments, and our misfortunes, and together we rejoice in our achievements and triumphs, our successes and advances.

As members of a liberal profession, as students and workers in the great science of life, and of human comfort and happiness, we keep step in the march of modern progress, and stand shoulder to shoulder with the foremost in all the benevolent callings and pursuits of men. We gain knowledge and catch inspiration from associate intercourse. We brighten and sharpen our faculties and increase our resources for efficiency and usefulness by such annual convocations as are here assembled, and to which we have been welcomed for the *third* or *fourth* time in the history of our Southern Dental Association.

We feel, sirs, barren of words and forms for the expression of our estimate of your kindly greeting; but we confess that this greeting and welcome was not unexpected or a surprise: we know the hearts and ways of the "Old Dominion." We had been taught to look to Virginians as exemplars of traits and qualities that should distinguish the highest style of men and women; taught that their hearts were ever aglow with tenderness and sympathy, and their hands ever ready for works of courage, beneficence, and hospitality. We shall bear away to our distant homes, and cherish among our fondest memories, this striking and grateful incident of our present annual meeting.

Mr. President and members of the State Dental Association of Virginia, we again most earnestly and sincerely thank you for the graceful, kind, and courteous reception you have accorded us, and we beg to assure you that, *whenever* and *wherever* opportunity may present, we shall strive to emulate your social and professional virtues and accomplishments, and to requite the good offices that have distinguished the present occasion and marked it as a "red-letter day" in the annals of the Southern Dental Association.

The President then read his annual address, as follows:

ANNUAL ADDRESS.

BY WM. H. RICHARDS, D.D.S., PRESIDENT.

Now, and through the centuries to come, the dentists of the world will proclaim that the birthday of dentistry, as a specialty of medicine, was the nineteenth century.

The art grew strong and filled the people with wonder at its startling development into one of the most important branches of the healing art now known to man. That our calling is a distinct branch of medical science no one will now deny. The public appreciation of our ability to assist nature to a more perfect work demands of us that we consider more closely the importance of our profession as a factor in shaping the destiny of mankind.

Many of the heroes of the great strife consequent upon the establishing of our specialty are yet to be found in our land, and some are now among us. Well do they recall their labors of love and the ostracism which too much presumption heaped upon them for daring to proclaim that they, too, were a branch of the science of medicine.

Now the sound of the sculptor's chisel which shapes in enduring stone the forms of their departed *confrères* is heard. We rejoice with them and the multitude who feel that their labors were not in vain, and that they have been permitted to see a realization of their dreams and the hopes of their preceptors crystallize at the close of the most eventful century in the history of the world.

As a dental profession, we of the United States stand before the world to-day at its head. From every section of the globe eyes are turned to us for advanced thought upon every phase of our specialty. We have had the boldness, from past successes, to keep our banner ever upon the summit. He must run who would read our foremost thoughts.

From a small beginning we have risen, through many hard-fought battles, upon the stepping-stones of our dead selves. It is by exuviation that the physical man of to-day is not the man he was seven years ago. The man of science, like the soldier, is of small importance, compared to results desired. Organizations, like individuals, change; they must grow stronger or weaker.

We must, therefore, be labeled for our place in the archives of Time. Let us be sure our position be one of distinction. The laws which govern the physical world have many aspects, each depending upon the other to sustain the whole. The same may be said of us individually and collectively.

The parties who conceived the idea of the first dental college are unknown to the profession. But he who carried the conception into a living reality reared for himself an everlasting monument.

To Chapin A. Harris we owe homage. To him be given the praise for the first lesson in progress. No man lives for the good of his fellow-man who blocks the wheels of progress, nor is he remembered for being an obstructionist. The profession in the United States has a most enviable record. Other countries, with suggestions which are the fruit of our labors, are forging ahead. The offspring of the first school of dentistry occupy every land, clothed with inspiration from the mantle of Chapin A. Harris. Our task, on this account, is growing more arduous with each succeeding generation.

Those of us who have gathered together on this historic spot, from every quarter of our great country, are peering at each other through the fading twilight of the nineteenth century. The eyes of the world are upon us. Let our acts be such as to commend us to all right-thinking men as being worthy the vocation whereunto we are called.

Circumstances surrounding the growth of dentistry in this country,—the multiplicity of schools, the necessity of regulating laws, higher education, and greater competition,—force the growth and supply the necessary encouragement to those who are willing to sell their professional birthright.

All these conditions, and more, confront the two national Dental Associations now assembled, neither of which is recognized as a court of last resort. Both feel the burden of responsibility resting upon them; both are bound by the tie of sectionalism. Several times they have felt the importance of united effort, but as many times they have yielded to the persuasive tones of the few who do not consider the interests of the many who wait upon their pleasure.

It is when men rise to the point where they are willing to sacri-

fice their personal desire, in whatever direction, for the sake of science that we note an advance in the calling which they represent.

Let us therefore maintain the reputation which our predecessors wrought so zealously to establish by proving ourselves worthy our country, the greatest upon the globe,—our time, the most propitious in the history of dentistry; and by our acts show ourselves equal to closing the century with the seal of approval which cannot be effaced by the tooth of time.

Let us share the glory of being equal to any movement, by whomsoever suggested, looking to a higher plane of usefulness. Let the pages of history—the vitascope of time—show we were capable of receiving an inspiration and placing it, as did our forefathers, to be read of all men.

The representative men of the dental profession of the United States, as two Associations, both claiming to be national, are here assembled upon the sacred soil of Virginia, by mutual consent, to consider in their separate sessions the question of union.

We have heard of something like Union once before—thirty years ago. Our movement is but a sequence of that. It is wonderful when we contemplate the fact that the States of the United States, daughters of Virginia, send their children to the lap of the "Mother State" to harmonize their differences, and as we approach the subject with these thoughts we are reminded of our childhood days. May such harmonizing influence surround us now! Let us realize that we are but children grown tall; that we sigh for the touch of a hand that is vanished to strengthen our courage and make us forget our differences, unify our purposes, and concentrate our forces, for destiny demands compliance, that we may the more effectually stand before the world, not only to practice our calling in a creditable way, but to unite into one common brotherhood every dentist of the United States worthy the name.

The two Associations have members in common from all the States. Each State having a law unto itself, like that of the Medes and Persians, and, like Prometheus, every dentist being tied to his own by rock-bound laws which keep him out of other States, the conditions confronting the profession are not unlike those governing the States in Colonial days, each independent of the other.

In the event that the two Associations resolve themselves into one, the name of the new body is important. I take the privilege of suggesting two, one of which carries with it a mutual dependence,—that of "North American Dental Association,"—the other expresses individual force, and seems to lend dignity,—"National Dental Surgeons."

I cannot close my remarks upon this most important theme in a more appropriate way—coming as we do from the section of the United States which was foremost in advancing the calling of the profession in its early history—than by reminding you that we should be justly jealous of our prerogative. We cannot be awake to our duty if we fail to consider a suggestion made by a distinguished member of the Southern Association in his presidential address before the American Dental Association at Saratoga, in 1896. I quote from his address: "Further, I would suggest, in case the consolidation referred to cannot be accomplished, this Association hereafter hold its annual meetings in the three grand divisions of our great country,—viz, the Northeast to have one meeting, the Northwest to have one, and the South to have one meeting,—thus alternating, from year to year, in order that the whole profession throughout the entire country may have its full share and benefit resulting from our national organization." I have considered the subject before you in a general way to direct your thoughts along lines which seem to me proper, hoping to lay the matter open to a careful consideration, that you will do as is becoming any strictly scientific association, losing sight of self and all else which may tend to limit our usefulness to each other, to our *clientèle*, to our country, and to Him who declared that we were made in His image, therefore we should quit ourselves like gods.

I hope, in the event of a union, that the Southern Dental Association will keep its memory green by retaining its name and changing its constitution and by-laws to conform to the new Association, and that her future history as a Section will be in keeping with her previous work, shining like a star of the first magnitude upon the banner of progress.

While we are here for considering the feasibility of bringing into existence a new organization to meet the needs of the times, we must be reminded that one of our number—Dr. Francis Pea-

body, of Louisville, Ky.—has filled the measure of his day and generation and been called before the highest court, from which there is no appeal. Let our resolutions show we are in sympathy with the bereaved.

With a full appreciation of the honor it pleased you to invest me with, I began promptly the duty you assigned me one year ago, hoping, with the assistance of those whom I appointed to carry out what might reasonably be expected, to gain for them your heartfelt approval, for they have labored for no other reward, and against difficulties known only to them. All that has been done we hope will be for the best.

I thank all whom I have been permitted to associate with in this work, and also the Association, for your respectful attention.

On motion of Dr. J. Rollo Knapp, New Orleans, La., the President's Address was referred to the Committee on Union, of which Dr. L. G. Noel is chairman.

Dr. V. E. TURNER, Chairman of the Executive Committee, announced that the committee was ready to receive applications for membership.

The Secretary then proceeded to call the roll.

The following resolution, offered by Dr. V. E. Turner, was unanimously adopted:

Resolved, That an invitation be extended to the members of the American Dental Association to attend the sessions of this meeting and the clinics. A card, signed by the Recording Secretary of the American Dental Association, Dr. Cushing, will admit any member of the American to the clinic-room.

The Chair appointed Drs. Thackston, Beach, and Wright as Committee on Necrology.

Dr. V. E. TURNER, Chairman of the Executive Committee, reported the following changes in the program as published:

First. That the afternoon sessions be held at 3 instead of 2.30 P.M.

Second. That as it is desirable that the question of union or consolidation of the American and the Southern Associations, which has been agitated for a number of years, be settled as early as possible, that that business be made the special order for the afternoon session, and that the Chairman of the Committee

on Union be requested to present his report at that hour—3 P.M., Tuesday.

Dr. L. G. NOEL, Nashville, Tenn., Chairman of the Committee, stated that the committee were not yet ready to make a final report, but they would be glad to have the subject discussed and the sentiments of the Association made known before submitting their final report.

Dr. H. J. MCKELLOPS, St. Louis, Mo. This is a very serious question that we are about to decide. Let us take time and do it like men. We are not yet ready for final action; we are not all here. Do not act with indecent haste; we have the week before us. We are not prepared to announce our decision this afternoon.

Dr. A. R. MELENDY, Knoxville, Tenn. It will not be possible to act upon this question this afternoon. The Treasurer is not here to collect the dues, and, according to the constitution, members of the Association are not competent for duty until their dues are paid.

Dr. T. M. ALLEN, Birmingham, Ala. I move to amend by substituting to-morrow at 3 P.M.

Amendment adopted.

Dr. L. M. COWARDIN, Richmond, Va. I move that the report of the Committee on the President's Address be made the special order of business for this afternoon.

Dr. B. HOLLY SMITH, Baltimore, Md. I move to amend that this be heard at the same time as the report of the Committee on Union, as it is on practically the same subject.

Amendment adopted.

Dr. L. M. COWARDIN. I move that we do now adjourn, as the Treasurer is not here to collect dues.

Dr. S. W. FOSTER. I move that when we adjourn it be to meet in the banquet hall on the next floor, as there is too much noise and confusion here.

Motion, as amended, adopted.

AFTERNOON SESSION, AUGUST 3.

Called to order, according to adjournment, with the President in the chair.

The Secretary read the minutes of the morning session, which were approved and adopted.

Committee on Operative Dentistry called.

The Chairman, Dr. Frank Holland, Atlanta, Ga., asked that his report be deferred until Wednesday morning.

On motion of Dr. Cowardin, the request was granted.

Committee on Prosthetic Dentistry being called, Dr. W. E. WALKER, Pass Christian, Miss., Chairman, reported three papers from his Committee: One from Dr. F. F. Fletcher, St. Louis, Mo., entitled, "The Relation of Orthodontia to Ideal Bridge-Work;" one from Dr. I. N. Carr, Durham, N. C., on "Bridge-Work," and one from himself, entitled, "The Facial Line and Angles in Prosthetic Dentistry."

The CHAIR. Is it the pleasure of the Association that we now proceed to listen to the reading of the papers presented by the Committee on Prosthetic Dentistry?

Assent being given, the Secretary, in the absence of Dr. Fletcher, proceeded to read his paper, but was interrupted by

Dr. H. W. MORGAN, who said: Mr. President, I rise to a point of order. It is the rule of this Association that only original matter shall be received. The statement has been made to me that this paper has been read and discussed by the Missouri State Society, of which statement proof is offered. What has the Chairman of the Committee to say?

Dr. W. E. WALKER. I know nothing about the paper or the writer. The paper was not sent directly to me, but was handed to me by the President of the Association.

The CHAIR. The paper was sent to me by Dr. R. K. Luckie, Chairman of the Clinic Committee, as there is to be a clinic by the writer of the paper to cover the ground taken in the paper.

Dr. QUATTLEBAUM. I move that the Secretary continue the reading.

The CHAIR. It is the question of the principle involved that we must consider.

Dr. H. J. MCKELLOPS. Unless the paper is an original one, and this its first reading, it is not competent to be read before this body.

Dr. H. W. MORGAN. Dr. Fletcher is my friend, and I have the highest respect for him, but we should not go against the rules of the Society.

Dr. McKellops. I am one of the oldest members of this Association, and I have never yet heard of a paper being read before this body that has been already read and discussed elsewhere.

The Chair. All in favor of a suspension of the reading say "aye." Carried.

The Chairman of the Executive Committee reported the following applications for active membership, all requirements having been complied with: Drs. F. C. Wilson, Savannah, Ga.; J. W. David, Mexia, Tex.; J. G. Fife, Dallas, Tex.; B. J. Pressey, Newport News, Va.; J. B. Pressey, Hampton, Va.; J. A. Dale, Nashville, Tenn.; Edw. Eggleston, Richmond, Va.; J. P. Corley, Greensboro, Ala.

On motion, the rules were suspended and the Secretary authorized to cast the unanimous ballot of the Association in favor of the gentlemen, whose names were thus placed on record as active members of the Southern Dental Association.

Section on Prosthetic Dentistry was called.

Dr. Isaac N. Carr, Durham, N. C., then read the following paper:

PROSTHETIC DENTISTRY.

Upon this subject I have had, for the past twenty-two years, but one idea, and that is that the beauty of all artificial work lies in the ability of the artist to conceal the art; and nowhere is this more desirable than in prosthetic dentistry. I might write an exhaustive paper on how to arrange teeth on a gold or vulcanite plate; how to set a porcelain crown to produce the most pleasing effect, etc., but this would be wearisome. So I come to you with one idea upon a class of work that has engaged the thought of the best mechanical minds in our profession since 1886. I refer to bridge-work.

There are several elements which enter into its proper construction, three of which I desire to mention. First, it must have strength to withstand the stress of mastication; second, it must be cleanly; and thirdly, it must be artistic in the sense that I have described art. To bring out these three points we will describe a case. A lady wishes to have the space filled caused by the loss of two upper bicuspids on either side of the mouth. We would first prepare the molar tooth for a snugly fitting gold crown, and next

the cuspid tooth for an abutment. To crown the cuspid with gold would be extremely inartistic; to cut it down sufficiently to put on a "window" crown would injure the shape of the tooth more or less, besides showing a band of gold at the cervical margin that would be unsightly, besides the possibility of the tooth's decaying at this point. It is to secure one end of the bridge to this tooth in the strongest and most artistic manner that I wish to speak.

Briefly stated, it is as follows: Grind the palatine surface to allow a cap of gold, about No. 28 Stubbs gauge, to fit over it; then drill three pits sufficiently deep to cement three platinum pins the size of the pins in artificial teeth. These pits are drilled at points farthest distant from the pulp, and not at all deep. Now take a piece of platinum foil and burnish over the surface of the tooth that you have ground, and trim to shape; then thrust the little platinum pins through the foil into the pits prepared to receive them, having them extend outside about one-sixteenth of an inch, so that when the foil-cap is removed the pins will come with it and be *in situ.* Now take a small piece of sticky wax and soften it; press it over the foil and pins, and, when hard, remove. Then fill the inside with plaster and very fine marble dust; after this sets, remove the wax from the other side, and flow pure gold or 22 K. solder over the platinum and pins, sufficiently thick to give the necessary strength. Select your teeth; take impression of parts with gold crown and cap in position; make articulating model; back up your teeth, put them in place, and solder. By this method not one particle of gold shows except the tips of the false teeth, and possibly the tip end of gold on cuspid tooth.

This method is not original with me, but was evolved from the fertile brain of one of our members, Dr. C. L. Alexander, of Charlotte, N. C. I might mention also that the porcelain teeth ought not to touch the gum, but, on the contrary, space sufficient should be allowed so that a quill tooth-pick would readily pass between them and the gum. In conclusion, let me say that I have a bridge in my own mouth constructed upon the principle described, and find it very satisfactory indeed; besides, I have made several myself, to the entire satisfaction of my patients. I trust this crudely written paper will suffice to bring out a discussion upon this branch of the subject, and, if it is so desired, I will demonstrate the method for the benefit of those who perhaps may not have seen or used it.

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With this distinction borne in mind it is clear that the misuse of these terms in this connection is liable to occasion gross errors in the statement of facts, one of which occurs in "Catching's Compendium for 1896," as follows:

Dr. H. H. Burchard, the very able editor of the recently added department of the "Compendium," entitled "Science in Dentistry," has kindly familiarized himself with my work, and demonstrated to his own satisfaction the correctness of my views, having had my physiological articulator in his possession for this purpose, testing its accuracy by the aid of casts of dentures mounted on the "bows" of the Bonwill anatomical articulator, which are interchangeable with my physiological articulator.

On page 376 of the "Compendium," paragraph 4, speaking of Dr. Bonwill's articulator, Dr. Burchard says, "Full dentures mounted in this articulator according to anatomical principles based upon its correctness, were found when placed in the mouth not to reproduce a correct anatomical occlusion; the difference being clearly traceable to the parallelism of the planes of articulation and occlusion."

Through carelessness in the use of the words "occlusion" and "articulation" this paragraph contains a statement exactly the reverse of the fact, for dentures which *occlude* properly in the Bonwill articulator, or in fact in any other *occluder* that I have ever seen, *will* (provided that a correct bite has been obtained) *occlude* when placed in the mouth, but there is no assurance that they will *articulate;* it is only by chance that they may happen to do so unless the angle of condyle-movement has been ascertained and reproduced. (The word *articulation* in the last line but one of the paragraph quoted should read "condyle-movement," as will be explained later in this paper.)

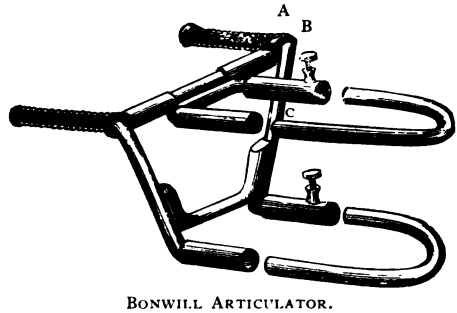
If plaster casts of normal human dentures be placed in the Bonwill articulator it will be found that though they will occlude properly, they, as a general thing, will not articulate; that is, when the lower jaw of the articulator is made to functionate, no provision being made in the articulator for reproducing the normal drop of the ramus, the incisors in the position for biting will not meet, being held apart by the contact of the cusps of the molars; neither can the molars be brought into proper contact as for grinding food, the cusps of the molars on the functioning side being held apart by the

contact of the superior lingual and the inferior buccal cusps of the opposite side.

Of my physiological articulator Dr. Burchard says, "The proof of its mechanical correctness may be seen by placing in it casts of a natural denture."

In the Bonwill articulator (Fig. 1) the plane of occlusion is parallel with the plane of condyle movement, the condyle-bar (A) which controls the function of the condyle being set at a right angle (B) to the ramus part (C). Consequently the Bonwill articulator can reproduce only a condyle movement which is parallel with the plane of occlusion.

FIG. 1.



BONWILL ARTICULATOR.

In the "American Text-Book of Prosthetic Dentistry," edited by Charles J. Essig, M.D., D.D.S., in an editorial note to Dr. Grant Molyneaux's chapter on "The Bite or Occlusion," page 376, the planes of the Bonwill articulator are spoken of as "parallel" in line 4, while in line 8 the governing parts are said to have an angle of about 10 to 15 degrees—a manifest contradiction. In all the Bonwill articulators that I have handled—and they have been many—I have found the condyle-bar (A, Fig. 1) to be at a right angle to the upright (C); in fact Dr. Bonwill himself says "it has never been changed in design since first invented in 1858."

I have studied the condyle movement very closely, in a large number of subjects, and have devised an instrument for measuring and registering the direction of the movement—the condyle-path, as I have termed it—but I have never yet met with a case in which the movement of the condyle was parallel with the plane of occlusion, though I have seen one case in which the path traversed by

one of the condyles varied but one degree from parallelism with the alveolar plane, the other condyle registering ten degrees variance. This, however, was in an edentulous person, in which the small angle was due to extreme absorption in the posterior portion of the mouth, the anterior teeth having been very recently extracted, producing a very unusual condition.

The general average is about thirty-five degrees, the highest thus far recorded in my observations being forty-five degrees.

It is a rather curious fact that Fig. 431 (page 372) of the "American Text-Book of Prosthetic Dentistry," which is used by Dr.

FIG. 2.

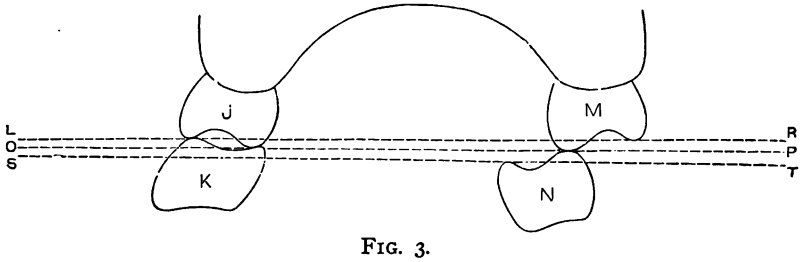
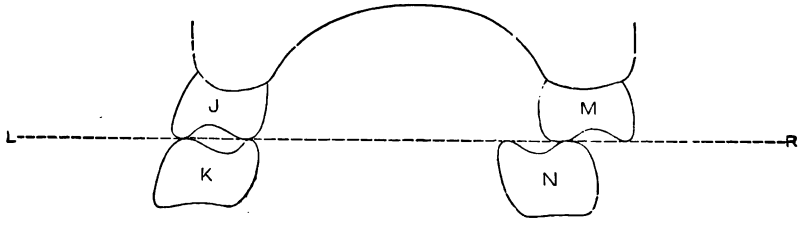


FIG. 3.



Molyneaux to prove the correctness of Dr. Bonwill's system of articulation, is an exact reproduction (even to the typographical inaccuracy in the lack of parallelism of the three planes of the cusps, L R, O P, and S T) of an original illustration never in print, except in the *Dental Cosmos* of January, 1897, page 40 (see Fig. 2); one which I designed to prove the *incorrectness* of that system. Fig. 3 is Dr. Bonwill's familiar illustration, to which reference was made by him in the words which Dr. Molyneaux quotes in reference to my illustration.

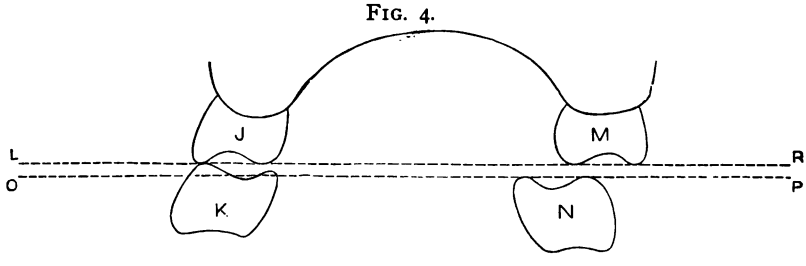
It will be observed that in Dr. Bonwill's illustration (Fig. 3), the buccal and lingual cusps of the upper molars J and M are of the same length, resting upon the plane L R, the cusps of the lower

molars K and N being also of the same length and touching the same line L R.

But if a denture articulated after this model be placed in the mouth, the drop of the ramus in the lateral movement of the jaw to the left will throw the teeth more or less exactly into the position shown in Fig. 4.

Teeth articulated by Dr. Bonwill's method—the "buccal cusps of the lower molars cut down and rounded," etc., will have the appearance shown in his own illustration (Fig. 3), but never that shown in Fig. 2 (used as Fig. 431 in the "American Text-Book of Prosthetic Dentistry"), which represents the molars as articulated in Walker's physiological articulator, with the mandible thrown to the right for mastication, the line L R the plane of the short buccal cusps of the upper molars J and M, being the same as in

FIG. 4.



Figs. 3 and 4, the *normally* longer lingual cusps of the upper molars J and M being on the lower plane O P. With the same drop of the left side of the mandible, the denture is nevertheless balanced by the *long buccal cusps* of the lower molar N meeting the long lingual cusps of the upper molar M on the plane O P.

The masticating articulation on the right side is also perfect, the long lingual cusp of the upper molar J being met by the short lingual cusp of the lower molar K on the lower plane O P, while the long buccal cusp of the lower molar K meets the short buccal cusp of the upper molar J on the highest plane L R.

The comparative length or height of the cusps of the bicuspid and molar teeth can be beautifully studied by making casts of as nearly perfect dentures as you can find. Then, as I explained in my first paper, place the casts with the *cusps downward*, on a clear slab of glass, when after considering them as a whole, the different pairs can be studied more closely by bringing the pair under study

to the edge of the glass, when the comparative height of the cusps can be clearly seen; the curve of the interdental line not permitting this to be seen so well when the entire cast is over the glass.

The difference in the planes occupied by the buccal and lingual cusps is greater in the mouth than would appear in looking at a tooth out of the mouth, held with its long axis vertical, as seen in many book illustrations. As placed *in the bones* in the mouth the lower molars lean lingually, and the upper molars lean buccally, which has the effect of increasing the distance between the planes occupied by the buccal and lingual cusps.

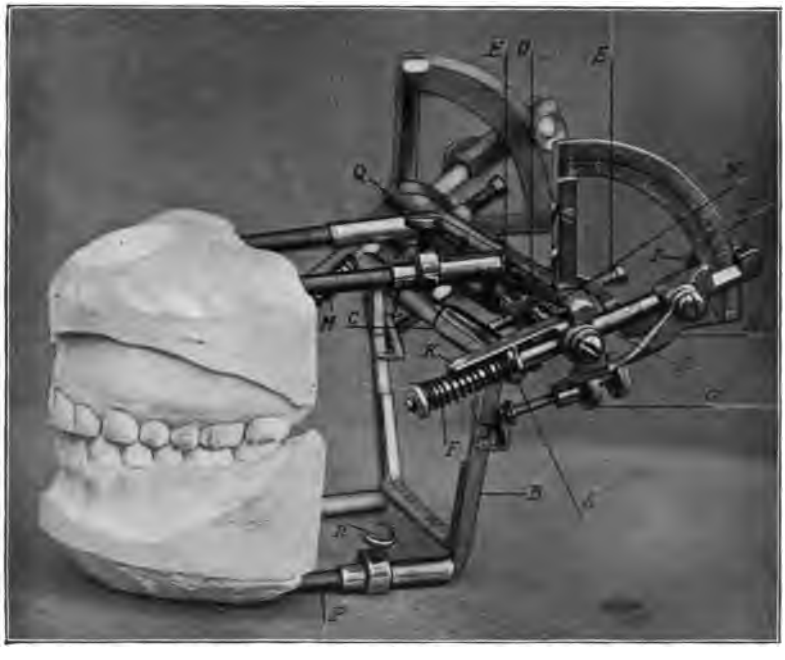
The prominence of the lingual over the buccal cusps in the upper teeth, and of the buccal over the lingual in the lower teeth, becomes greater as we proceed toward the ramus, partly due to an actual increase in difference, and partly to the gradually increasing variation of the long axis of the tooth from the vertical, as we proceed toward the ramus.

Dr. Bonwill's illustration (Fig. 3) (taken from a reprint of Dr. Bonwill's article in Harris's "Principles and Practice of Dental Surgery," twelfth edition), for which Dr. Molyneaux has substituted my Fig. 2 was also used by Dr. Bonwill as "Fig. 17," in the chart accompanying his Columbian Dental Congress paper, although it quite ignores the normal drop of the ramus in the functioning of the mandible, due to the *downward* as well as forward movement of the condyle in the lateral and the protrusive excursions of mastication, which, however, cannot be reproduced in the Bonwill articulator.

An articulator, to be reliable as a guide to the correct articulation of artificial teeth, must be capable of reproducing the articulation of casts of natural dentures, in all the different positions in which the lower jaw can be placed for grinding food, biting, etc., as well as in simple occlusion; otherwise we could reproduce only the simple up and down movements of opening and closing the jaws, without the possibility of lateral movement except with teeth nearly or quite devoid of cusps. Fig. 5 shows the Walker Physiological Articulator, designed to fulfill the indications noted. A represents the mandibular condyle and is, in construction, a ring attached to the ramus B through the bar C and slides on the bar D, which controls the movement of A, and thus represents the condyle path. E E is a bite-correcting fulcrum-screw, against which

the bar C rests, being pressed against it through the action of the spring F on A. The distance that A is moved by E is shown on the millimeter gauge K. G is another adjustable fulcrum-screw which plays against the back of the ramus B, and is easily removed with its supporting frame H, being required only in correcting a bite which is too open or too close. It causes the condyle to move forward and downward when the jaws are separated, which is of no moment in the construction of a denture unless the bite has to

FIG. 5.



be changed. The bar N is divided at the median line, so that the condylo-occlusal angle of each side may be adjusted independently, as they often vary. An adjustable sliding collar O carries the bite-correcting fulcrum-screw E, which passes through a slot in N. The bows P and M carrying the casts are secured by set-screws Q and R, and are in all cases to be pressed in as far as possible, and should never be moved to correct the occlusion. I is a clamping screw which binds D to the degree-gauge J, D being ad-

justed at the condylo-occlusal angle of the patient (or the condylo-alveolar angle in an edentulous case), the angle having been ascertained by the use of the facial clinometer as will be described later in this paper, and demonstrated in the clinics. The figure on the degree-gauge J, where it is crossed by the bar D, represents the angle formed by D and M when projected to the point of intersection. The casts are to be so mounted on the loops that the plane of occlusion (alveolar plane) shall be parallel with P and M.

In the short movements of mastication, the condyle on the side toward which the jaw is advancing travels forward and downward, on a line which being extended till it intersects the facial line forms at the point of intersection an angle which varies with and bears a definite relation to the morphology of the morsal surfaces of the teeth.

As this angle varies very considerably, not only in different individuals but also very frequently in the two condyles of the same individual, it is desirable and important—*first*, to be able to determine accurately the direction of the movement of the condyle,—the condyle path as I have termed it—compared with the facial line and the plane of occlusion in the functioning of the mandible, and—*second*, to be able to exactly reproduce the movements of the jaw in an articulator carrying the substitutes for lost dentures.

The path traversed by the condyle, extended till it intersects the facial line, forms at the intersection of these lines what I have termed the condylo-facial angle. The difference between this angle and that formed by the alveolar plane and the facial line, is the condylo-alveolar angle, to which I set the adjustable angle of my physiological articulator, securing the bar D of the articulator (Fig. 5) to the degree-gauge J at the proper point, by the clamping-screw I, in order to reproduce the exact movements of the jaw of the subject whose measurements have been taken.

The importance of the study of these facial lines and angles is pointed out by Dr. Broomell in the article before referred to with special reference to ascertaining the tooth-line level.

To measure the condyle movement and these various lines and angles, I have devised an instrument which I have called the Facial Clinometer (Fig. 6, and the part A B D N of Fig. 7). This appliance (which I will demonstrate in the clinic room) is made in two separate pieces and a number of small adjuncts. The adjust-

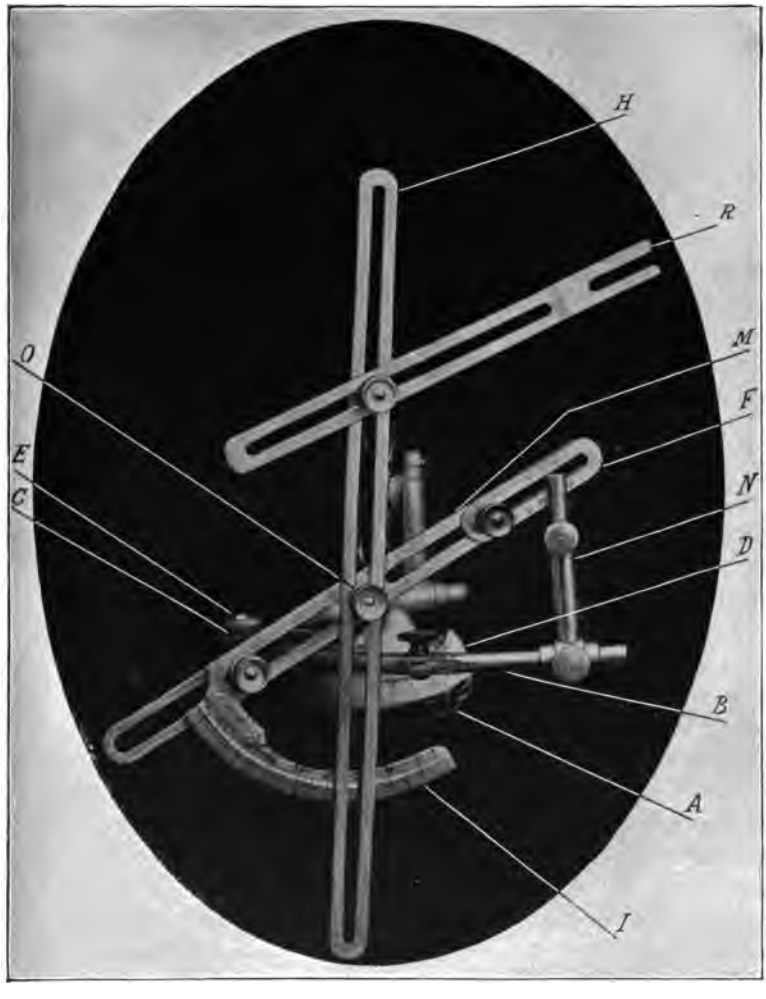
able jaw-piece B, Fig. 7, which is made of aluminum, is to be secured to the lower jaw and moves with it. When the lower anterior teeth are present, the piece is secured to these teeth. In

FIG. 6.

edentulous cases, a lower impression is taken and a base-plate made (by the method of Dr. T. C. West, of Natchez, Miss.), as follows: Having obtained an accurate cast showing the seat of the lower artificial denture, coat the cast with rubber cement, and

press in, with the fingers only, a sheet of black vulcanizable rubber, which will adhere to the cast because of the cement. Vulcanize, but only about three-fourths of the time required for a finished

FIG. 7.



piece. This base-plate (Fig. 7, A) is trimmed to accommodate the muscles, and then secured to a lower impression tray (C) by means of plaster of Paris (D). When the plaster has hardened, the jaw-

piece of the clinometer is secured to the handle of the impression tray by the set-screw E, and the base-plate placed in the mouth of the patient, serving as a support to the jaw-piece of the clinometer. The condyle of the patient is located by pressing with the ball of the thumb in front of the ear of the patient, during movements of the jaw in slowly opening and closing the mouth, its position when at rest being indicated upon the skin with a slight ink or pencil mark, or a bit of court plaster may be used if preferred. In a very thin person the movement of the condyle may sometimes be seen quite distinctly.

A projection at the upper end of the adjustable upright N (Fig. 7) of the jaw-piece is placed exactly over the condyle as located. The head-piece (Fig. 6) being also in position on the head of the patient, the projection of N (Fig. 7) plays in the slot of the transverse bar M (Figs. 6 and 7), which is loosely pivoted to the upright H at O, the direction of M, which moves freely on the pivot-screw O, being determined by the movements of the jaw to which N as part of B (Fig. 7) is secured. When in repeated opening and closing of the mouth (the projection from N slides easily in the slot of M without changing the direction of M), the set-screw O is tightened, the angle made by the condyle path (represented by M) with the facial line (represented by H) being registered on the degree-gauge I in the slot of the upright H. This is the condylo-facial angle. The millimeter gauges (Figs. 6 and 7) serve to measure simultaneously the distance traversed by the condyles in the excursions of the mandible, one moving forward, the other usually receding a little, sometimes not perceptibly, but in some cases receding a distance one-third that advanced by the other. I quote from my second paper:

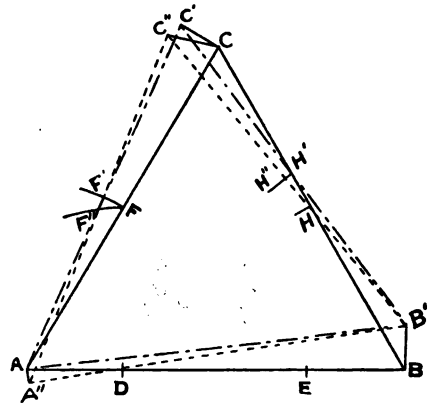
"The ratio between the forward movement of one condyle and the synchronous backward movement of the other varies greatly in different individuals, and even in the same individual the ratio often varies in the left lateral movement as compared with the right. This distance measurement is registered in millimeters by the clinometer, and recorded on the articulator, where it serves to correspondingly regulate the distance at which to place the bite correcting fulcrum-screws (E, Fig. 5) from the condyles of the articulator. The importance of being able to recognize the extent to which, in any given case, one condyle recedes as the other advances, and of

being enabled to utilize the observation, is illustrated by the diagram Fig. 8."

I quote from my paper No. 2, *Dental Cosmos*, July, 1896, page 579:

"The mandible, as we know, is based on the equilateral triangle, the sides measuring four inches. In the diagram A and B represent the condyles, C the point between the central incisors. If we imagine that the mandible is thrown to the left, and that the left condyle A does not recede, B, the condyle of the left side, takes the position B′, while C, the median line of the incisors, travels to C′. In the molar region F travels to F′ on the left, and H to H′ on the

FIG. 8.



right. But in a case in which the right condyle B advances the same distance as before, while the left condyle A recedes one-third of that distance, moving to A″, we will find that the entire triangle acts as though turning on the fulcrum D. C, instead of moving to C′, will reach C″, while F will have moved to F″, and H to H″.

"In constructing a set of teeth for a subject in whom, by reason of the condyle receding on the grinding side, the fulcrum is at D as shown, instead of at A, if by reason of the construction of the articulator the fulcrum is immovably fixed at A, instead of being movable to suit the case, we should find the articulation at fault to the extent of the difference between the points F′ and F″, H′ and H″, C′ and C″, respectively, causing inevitable interference of the

cusps, necessitating either the sacrifice of the cusps or the reconstruction of the set."

By comparing Figs. 6 and 7 it will be recognized that H, O, I, M, and R are in both figures, H and M of Fig. 6 being enlarged in

FIG. 9.

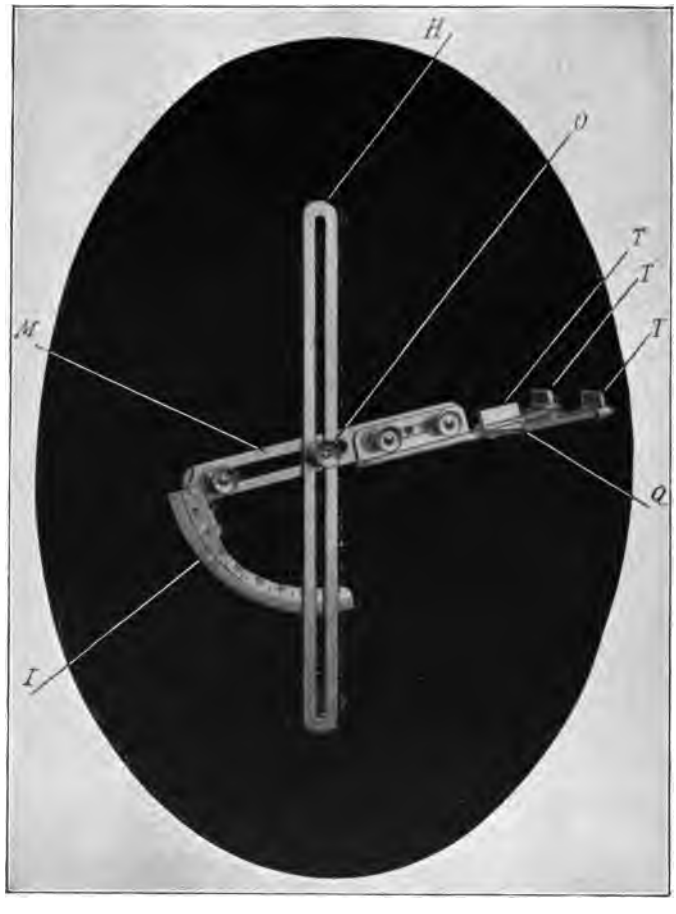


Fig. 7, and showing the relation between the jaw-piece and the head-piece. H is supported by the adjustable head-band L (Fig. 6) which surrounds the head and rests upon it as seen at P. H having been adjusted parallel with the facial line is held rigidly by the set-screws of the brace-bar R. To adjust H parallel with the

facial line, projections from the center of the cross-bars A and B (Fig. 6) are placed respectively against the upper lip close under the nose, and the brow between the eyebrows, the bars being thus transversely at right angles to the facial line. The upright H is placed in contact with the ends of A and B, so that it in turn becomes parallel with the facial line, which it serves to represent, the angle made by the transverse bar M, in the position to which it is guided by the movements of the jaw through the upright N of the jaw-piece (Fig. 7) being found recorded on the degree-gauge in the slot H as before described. Having thus found the condylo-facial angle the jaw-piece is removed and the piece Q (Fig. 9) is secured to M (Figs. 6, 7, 9), and placed in the mouth with the parts T, T′, T″ touching the upper alveolar process. M playing on the pivot-screw O in the upright H (Figs. 6, 7, 9), H being parallel with the facial line as before, in the center of the slot in H on the degree-gauge I, will be found registered the alveolo-facial angle. The mathematical difference between the alveolo-facial angle and the condylo-facial angle is the condylo-occlusal angle, to which angle the degree-gauge J of this articulator (Fig. 5) is set for each individual case, in order that the mandible or lower jaw of the articulator may functionate in exact reproduction of the movement of the mandible of the subject. The degree-gauges of the clinometer, by means of various appliances which will be shown in the clinic, register not only the angles of which I have spoken, but others, such as the mandibulo-facial, the classic-facial, the articulo-facial, the alveolo-facial, the occluso-facial, the dento-facial, and other angles, all of which are of scientific interest and all of value to the dental and oral prosthetist who desires to secure that scientific accuracy essential to perfection in the practical value, and the comfort to the wearer, of dental prosthetic appliances, and which have a more or less direct bearing upon the perfection of the results to be obtained through the use of the physiological articulator and the facial clinometer.

The CHAIR. You have heard the papers presented by the Committee on Prosthetic Dentistry; what is your pleasure?

On motion, the papers were declared open to discussion.

DISCUSSION.

Dr. GRANT MOLYNEAUX, Cincinnati. I regret to say that I did not hear all of the paper, though I came in for that purpose. I have read Dr. Walker's previous papers, and am sorry not to have had the opportunity of meeting him before this. I appreciate his motives in the work he is doing in the cause of prosthetic dentistry, but from what I have read of his previous papers I cannot agree with him on all points. Not having heard this paper, I cannot intelligently discuss it.

What I have recently written myself on the articulation of artificial teeth was sent to the publishers of "Essig's Prosthetic Dentistry" in crude form, and I had no opportunity of revising the proof. I did not know, until it was too late, that my little cut had been left out, and an original illustration of Dr. Walker's placed in the position which he antagonizes. I admire Dr. Walker's efforts, and am willing to apologize for this use of his cut in my article.

I am always totally opposed to any attempt at destruction without a corresponding reconstruction. If he can produce a complete system based on the position he has taken, I shall be quite ready to accept and adopt it. Dr. Bonwill has offered us a complete system, and, as you all know, prosthetic dentistry was in great disrepute when he undertook to elevate it to the position of a science by offering to us his anatomical articulator, an instrument which is absolutely correct in the mechanical principles involved. His system is very difficult to fully understand. I spent over it many long nights and many weary days, but when I did understand it I felt that it was absolutely in practical shape. Dr. Bonwill first made it possible to adopt a system in the arrangement of artificial teeth, and enabled us to teach the student by fixed and certain rules. His was the grandest work done in modern years. Dr. Bonwill made the start along this line; give him all the glory. I cannot differ from him, for I have carried out his system a thousand times or more. I would be glad if Dr. Walker could develop something better, but I do not think he has developed his ideas to the perfection of a system. I do not believe in destruction unless there is construction to replace it. By diagrams and photographs and clinical demonstrations he must, as Dr. Bonwill has done, prove the absoluteness of his claim. Once more I apologize for the fact that one of his drawings was used by the editor, especially as the

illustration was designed to disprove the position I occupy. If he can convict me of error I will willingly admit it.

I have adopted Dr. Bonwill's system because as far as I know it is the only system ever perfected. If Dr. Walker brings out anything better I shall be glad to accept it. I am one of the "old dogs," but not "too old to learn new tricks;" but I do not think he has quite attained his object.

Dr. E. P. BEADLES, Danville, Va. I for one would be glad if Dr. Walker would state his side of the question clearly, in a few words, and let Dr. Molyneaux state the other side, so that we can see what the difference really is.

Dr. WALKER. No one is more ready than I am to give credit to Dr. Bonwill for his pioneer work. His was the first and the only scientific work done in the line of articulating artificial teeth. He first pointed out certain essential conditions, and he devised an apparatus for attaining those conditions. My work has been to carry it out still further, and also to correct certain errors. In the course of my practical work in the laboratory I found that his instrument was not perfect. His anatomical articulator is faulty in that portion of the mechanism which controls the condyle movement. It is based upon the statement found in all the text-books, —that the movement of the condyle is forward. He accordingly makes his articulator reproduce a forward movement that is parallel with the plane of occlusion, all the cusps of antagonizing molars occupying the same plane, the only one possible in his articulator. This is not according to nature, as may be readily proved, for if casts of natural teeth be placed in the Bonwill articulator the incisors cannot be made to strike cutting-edge to cutting-edge; that is, in the position for biting, for the normal up-curve of the plane of occlusion will cause the molars to come in contact first, preventing the incisors from meeting. This is because the normal drop of the ramus in the movement of the lower jaw cannot be reproduced in the Bonwill articulator. If those same casts are placed in my physiological articulator the incisors will touch, as in the act of biting.

The same is true of the grinding position. The cusps on the grinding side will not meet, being held apart by the cusps on the other side, there being no drop of the ramus.

At the meeting of this Association in Atlanta, in November, 1895,

when I first showed the model of my physiological articulator, Dr. Bonwill had casts of what he considers a perfect normal denture, mounted in his articulator, demonstrating a beautiful occlusion. I tried to place them in the grinding position, but they would not articulate. I showed that to many of those here present. You know that the bows of the Bonwill articulator are readily removable with the casts mounted. In the form of my articulator that I then presented casts mounted on the Bonwill bows were adjustable in my articulator, the same as in the Bonwill articulator. I asked Dr. Bonwill to let me place those casts in my articulator, mounted as they were on his own bows. He positively refused to allow me to remove them from his articulator, or to remove them himself for the purpose of making the desired demonstration.

I had with me on that occasion, however, casts of as nearly perfect dentures as we usually encounter, and I showed that by setting my articulator at the correct angle for the reproduction of the normal condyle movement of the individual, the incisors of casts of natural teeth would meet, as in biting, in my articulator, which they would not do when placed in the Bonwill articulator. The same was true for the grinding position.

If casts of natural teeth cannot be placed in position to bite and grind in an articulator, there is something wrong in the machine.

For my articulator I arrange artificial teeth according to nature. For the Bonwill articulator it is necessary to "cut down and round" certain cusps, that the buccal and lingual cusps may articulate on the same plane, which is not nature's plan.

Dr. QUATTLEBAUM. Will Dr. Walker demonstrate what he claims?

Dr. WALKER. I will do so with pleasure at the clinics on Thursday.

Dr. W. T. ARRINGTON. For many years I confined myself to the old devices for articulating artificial teeth. When Dr. Bonwill's articulator appeared I tried to study his methods, but the more I studied the less I comprehended. I must say the same of reading Dr. Walker's papers. I am simply mystified. But I will say that from his remarks to-day I am forced to believe that his knowledge of physiology and anatomy, in its application in his articulator, is as far above Dr. Bonwill's as Dr. Bonwill's is above the old fixed plaster articulator.

Dr. J. Y. CRAWFORD, Nashville, Tenn. I rise to speak in commendation of the work of Dr. Walker. Some things that have been said on this subject remind me of a certain old practitioner who boasted that in six weeks he had made sixteen sets of teeth and never saw an articulator! There are others who think it does not make much difference which side up you use an articulator; the upper model in the lower half will do just as well as any other way! We are still fighting the battle I engaged in eighteen years ago, when I urged the importance of a knowledge of anatomy applied to the articulation of artificial teeth.

As to the dispute between Dr. Bonwill and Dr. Walker and the merits of their respective articulators, I regard the labor and work of Dr. Bonwill as very valuable, but if there is anything in the statements and claims made, Dr. Bonwill's articulator will not stand the test. Dr. Walker has made a point on Dr. Bonwill in the reproduction of the movements of the lower jaw as it sweeps downward as well as forward, a movement in some cases more marked, it is true, than in others. In some people it is exaggerated; a very considerable downward glide causing a marked modification of the occlusal line and difference in the parallelism of the planes of occlusion and of condyle movement. In other cases there is but a very slight variation from the horizontal plane; it may be even a perfectly straight line. When the downward movement is greater the curvature of the line of occlusion is greater also. If there is anything in Dr. Bonwill's claim for the necessity of an anatomical articulator, there is far greater necessity for Dr. Walker's physiological articulator, for it is essential that we should be able to reproduce the exact movements of the lower jaw in order to secure three points of contact simultaneously, at the three angles of a triangle. Fifteen, sixteen, or eighteen years ago I attempted to demonstrate that the success of an artificial denture depended entirely upon the correctness of articulation and occlusion. If an artificial denture is supported in the mouth, in the position for mastication, at the three points of an equilateral triangle, it will not be disarranged during the process of mastication. If Dr. Bonwill and Dr. Walker conjointly have accomplished that feat they will have lifted prosthetic dentistry from the slums into which it has fallen. They will have rescued dental prosthetics from the position of an incubus upon the profession.

Dr. J. D. PATTERSON, Kansas City. There is one point which has not been touched upon, and it is an important one. In my operations I use the Bonwill articulator, not for its movements, but because I can see it from behind and see the position of the cusps. When I try the piece in the mouth, if the antagonism of the natural or the artificial teeth is not what I want, it is easily altered. Experience has taught me that no two persons have the jaw-movements the same, and that people well along in years—and they are the ones for whom we construct the most of our full dentures—have acquired new movements of the jaw as they have lost one tooth after another. They have learned to close the jaws, in order to obtain contact of remaining teeth, in a way which was not originally natural, but which has in many cases become second nature.

They make movements not in accord with the anatomy of the parts; a faulty movement perhaps, but an acquired habit which you would try in vain to break up. To accommodate this, place the teeth on a base-plate which can be softened by heat and made to articulate to suit each individual, and then you have got it. But no articulator will do it. Let the patient make his own acquired movement, and you will find that you will have gotten over many difficulties. But do not attempt to make all your dentures anatomically perfect, especially for patients advancing in years.

Dr. MOLYNEAUX. What does Dr. Patterson understand by "anatomically perfect?"

Dr. PATTERSON. Drs. Walker and Bonwill attempt in their articulators to reproduce the normal physiological action. Now, every patient that we have to work for differs from every other one in this respect; we must have a different action for each individual; from years of usage in some special method they will not articulate as you would like them to do.

Dr. MOLYNEAUX. I think Dr. Patterson is "a little off" on this. I would like to answer him when all the others are through.

Dr. J. Y. CRAWFORD. It is absolutely the duty of every dentist who constructs a full upper and lower denture to give it a perfect occlusion and a serviceable articulation. But notwithstanding all that has been said and done, it is the experience of the whole profession that however perfect it may appear in the best articulator now at command there is always something to be corrected and perfected before final construction.

Dr. MOLYNEAUX. It is difficult to make this matter clear without the aid of diagrams that all could see. What do we understand by the physiological articulation of the natural teeth, or of artificial teeth? Is it the same at eighty as at eighteen?

Dr. Bonwill never intended to convey the idea that the relation between the over-bite and the curvature of the line of occlusion was the same in every case. Conditions are greatly modified by advancing age. When there is a protruding lower jaw there is no over-bite, and it would not be either anatomically or physiologically correct to give an artificial over-bite in such a case; the same is true of cases where the incisor teeth meet edge to edge. A patient with normal relations between the upper and lower teeth will have a given over-bite in early life and even into middle age, as exemplified by Dr. Bonwill, and this can be carried out in his articulator the same as in the mouth. I deny that in Dr. Bonwill's articulator the lower jaw does not pass downward and outward exactly as does the natural jaw. There is a peculiar arrangement of the joint of Dr. Bonwill's articulator that permits a perfect reproduction of all the natural movements. All imitations of or attempts to improve upon Dr. Bonwill's articulator have been failures. In Dr. Bonwill's articulators, made according to his own design, the sliding ring is made of round wire which permits of correct movements. In some so-called Bonwill articulators, made by different manufacturers, this ring is made of square wire, interfering with the correct movements. No articulator can ever be made that will exactly reproduce the glenoid fossa with all its tissues and integuments. But one can be so constructed that the essential movements of the lower jaw in their relation to incisive action and contact of the cusps can be reproduced. I had one of the first Bonwill articulators that ever came out. I worked very hard, and, I will admit, almost despairingly, in trying to get it to work right; but all at once it came to me, and I now unhesitatingly pronounce it the greatest boon ever bestowed upon prosthetic dentistry. I repeat that the statement that the Bonwill articulator cannot reproduce all the essential movements of the jaw is not true. What regulates the articulation of the natural teeth? (Dr. Molyneaux draws upon the blackboard illustrations of the over-bite, molar cusps, sulci, the glenoid fossa, and condyle, indicating the bursæ, intra-articular cartilage, etc.) There are various subsidiary

movements of the jaw and positions into which it can be forced by virtue of the yielding character of some of the tissues, but we are not concerned with these. What we want is to be enabled to construct an artificial denture that will not be displaced in the natural movements of mastication. The Bonwill articulator does reproduce all the movements that are necessary to let the incisor teeth pass freely with proper contact of the cusps of the molar teeth. It would be as unphysiological to give the over-bite of youth to old people as to make the incisors of young people meet on edge. An artificial denture must reproduce what is natural to the age of the patient.

All that is necessary with the Bonwill articulator is to get the bite properly. It is not necessary to fit it in the mouth, though it may be returned to the mouth for artistic effects, twisting a tooth a little here, spacing a little there, etc., but not for the articulation. The essential point is to make the artificial teeth as natural to the age of the patient as the natural teeth would be.

Dr. ARRINGTON. If a patient, having reached advanced age, has lost the upper teeth, and the lower teeth are badly worn away, would you restore that? Would you not give any overlap?

Dr. MOLYNEAUX. I have discussed that point in "Essig's Prosthetic Dentistry." In addition to Dr. Bonwill's rules, allowance must be made for the changes natural to advancing age. I repeat, Dr. Bonwill's articulator does move forward and downward at the same time. I have no desire to antagonize Dr. Walker. I would be glad to have him show us a better way, but I do not think he has proved his position yet. Dr. Bonwill's method is based on a complete system, which is always the road to advancement. If you have the correct bite you will always get perfect results, with three points of contact for the incisive function with contact in the molar regions. If you want to give the over-bite you must give the natural over-bite with the corresponding curvature of the line of occlusion. The amount of over-bite regulates the angle. When Dr. Walker's papers appeared I read them several times. I tried the articulator as described. I worked in the dissecting-room; I made experiments in the laboratory, but it was useless; you can't get anything that will work automatically any more than you can digest food in an artificial stomach. You must allow for the changes in the glenoid fossa that come with age.

Dr. Bonwill's is the only perfect system ever given to the world. There should be no work of destruction until we are fully prepared to reconstruct. I shall still continue to follow Dr. Bonwill's system, but I will be the first to adopt Dr. Walker's when he gives us a better one.

Dr. WALKER (to close the discussion). I only wish to say that I quite agree with Dr. Molyneaux that it is neither possible nor necessary to reproduce the glenoid fossa with its synovial sac, intra-articular cartilage, etc.; neither is it necessary to reproduce all the subsidiary movements of the lower jaw. But what we do need is to ascertain the condyle movement in order to reproduce the habitual jaw-movements of the patient in hand. It is interesting, from a scientific point of view, to know what is the normal movement of the jaw in a person with normally articulated teeth, but as such cases are the exception rather than the rule, the important thing is to be able to reproduce the movements of the jaw which the patient habitually makes, and to be enabled to so arrange artificial teeth that they will articulate in accordance with those movements.

It is true there are some people, and we have all met with them, to our despair, in our practice, who, in losing the natural teeth, have lost control of the muscles which regulate the movements of the jaw; who cannot bite twice alike. In such cases a knowledge of the laws governing the movements of the jaw is invaluable. With correct measurements we can so articulate the teeth that they will guide the jaw in its movements, enabling the patient to recover control of the muscles. The object of the physiological articulator is not to secure the correct normal or anatomical condition of a perfect denture, but to reproduce the habitual movements proper to the age and condition of the patient. As to articulating the teeth in the mouth, I would rather let Dr. Patterson do that than do it myself. For my own use I prefer an articulator from which I know when the articulation is correct. If it is not right in the mouth, my articulator shows me how to correct it,—provided always that the condyle movement has been correctly registered and a correct bite taken. As to the construction of the Bonwill articulator, I will only say that I have handled a great many of them, getting them from different dealers, but I have never seen one with the sliding ring made of square wire. It is always a round

wire, with the part controlling the condyle movement at right angles with the ramus, and therefore parallel with the bars that hold the casts. I have purchased them in various places, and I have always found them all alike.

A gentleman here—Dr. Quattlebaum—has just told me that he went directly to Dr. Bonwill for one of his articulators, to be sure that it had no defect, and that it was just as I have described it,—with a round-wire sliding ring and the two parts at right angles.

(Dr. Walker here illustrated upon the blackboard the points he desired to make clear, the parallelism of the condyle-bar and the cast bars, etc.)

I will only say, in conclusion, that I fail to see wherein I have failed to reconstruct anything that I may have destroyed.

On motion, subject passed.

Dr. H. J. McKellops. Before we adjourn, I think we ought to do something about the movement to consolidate the two Associations that are now holding their meetings in this place. The other Association has made that the special order of business for to-morrow—

The Chair. That has already been made the special order of business for to-morrow afternoon. The Committee on Union will then make their report.

I have been asked to announce that the National Association of Dental Faculties will meet here after we adjourn.

On motion, a paper by Dr. John S. Marshall, of the Committee on Dental Education, was made the special order of business for the night session.

On motion, adjourned to 8.30 P.M.

EVENING SESSION, AUGUST 3.

Called to order according to adjournment; the President in the chair.

The Executive Committee reported the following applications for active membership, all requirements having been met: Drs. J. J. Sarrazin, New Orleans, La.; J. E. Orrison, Baltimore, Md.; F. L. Wood, Roanoke, Va.

On motion, the rules were suspended, and the Secretary cast the unanimous vote of the Association in favor of the applicants.

On motion of Dr. McKellops, a resolution was adopted providing that all members of the Association who have been for fifty years engaged in active practice shall be henceforth exempt from payment of dues.

Dr. JOHN S. MARSHALL, Chicago, then read the following paper:

DOES THE PRESENT METHOD OF TEACHING BY DIDACTIC LECTURES BEST QUALIFY THE STUDENT FOR THE PRACTICE OF HIS PROFESSION?

As a member of the Committee on Dental Education of this Association, I promised the Chairman, Dr. Henry W. Morgan, in an hour of weakness, that I would prepare a paper upon some aspect of this subject for the present meeting; and, not having the courage to disappoint him, I have made the best of a bad bargain by not wasting time or energy in the preparation of a lengthy article.

The spirit of the times is one of progress.

Everywhere in the secular and religious world this is made manifest by the universal desire for improvement. Men in every department of life are seeking after better methods of thought, of living, and of doing things. They are casting aside the obsolete and useless, and are reaching out after those things which give promise of real advancement and improvement, though they may be never so small.

In the arts and manufactures, in science and religion, this earnest desire is uppermost.

The age is also a practical age, and every thought, enterprise, or endeavor must have its practical side in order to claim the attention of the people. It is an age which has no patience with worn-out ideas, methods, or dogmas.

Forward is the watchword, and *practical excellence* the motto, and woe betide the individual, the corporation, the educational institution, or the church which takes no cognizance of the spirit of the time.

For several years this spirit of progress has been "moving upon the face of the waters" and stirring the stagnant pools of our edu-

cational institutions. The foremost educators of our land are seeking for better methods of teaching, better preparation of the knowledge to be imparted, by arranging and classifying it upon the most approved scientific plan, so that it may be the more readily comprehended and retained.

Knowledge to be of value must be useful. To be useful it must be classified. When classified it is accessible and capable of being applied to the subject under consideration.

The faculties of the dental colleges have not been unmindful of their obligations to the student, nor of the spirit of the age, and have tried to keep their institutions well to the forefront in this "onward march of progress." They have recognized the growth of the profession in its various departments, and have endeavored to keep pace with it. Many additions have been made to the course of study of the schools during the last few years, but nearly all of them have been upon the practical side, in the line of technique and laboratory work.

There is, however, great need of improvement in other directions, particularly in the present method of teaching by didactic lectures. The teaching in this line is just the same to-day that it was fifty or sixty years ago. A few colleges have made an attempt at improving the teaching in this direction by the introduction of other methods in combination with the lecture courses, but there has been no real advancement made which can compare with the work now done in the technique rooms and the laboratories.

In this respect we are behind the times, and need to bestir ourselves if we would maintain the reputation of the American dental colleges and the prestige of our graduates.

I shall, therefore, to bring this important matter to your attention, take the liberty of propounding the question which forms the title of this paper, briefly state my own views upon the subject, make a few suggestions, and then leave the matter in your hands for discussion.

Does the present method of teaching by didactic lectures best qualify the student for the practice of his profession?

My reply to this question is, No!

My reasons for this negative answer have grown out of a considerable practical experience, covering a number of years as a

teacher in medical and dental schools. I can therefore approach the subject with the feeling that I am not a novice, and that perhaps out of this experience and observation I may be able to suggest a better method of educating the students under our care than by this inadequate and antiquated method of the past. I am fully aware, however, that many of my colleagues have also felt the inadequacy of the lecture method to *instruct* and *educate* in the best sense of the terms, and of their desire for a better means of placing before the students the subjects which they desire to teach. I feel confident, therefore, that out of this discussion good must come, and that if the suggestions contained in this paper do not meet with your approval, something better will be evolved.

My first objection to the didactic lecture method of teaching is that there are very few men in the profession who have the eminent qualifications to make successful teachers under this system.

The power to write eloquent sentences, to display oratorical pyrotechnics and compose brilliant climaxes, are not qualifications for teaching. The orator and the stump speaker have no place in the class-room.

Entertainment of the students by funny stories is not the highest duty of the instructor. The paramount qualification for the office of teacher *is ability to impart knowledge and to teach the student how to apply it;* but how few there are who possess both of these important qualifications.

Many teachers are apt to impart knowledge, but few have the eminent qualification for the important labor of teaching how to apply it. Knowledge without this power is like a library without a reader, "more ornamental than useful."

My second objection is based upon the undisputed fact that a large majority of the gentlemen who occupy positions as teachers in our dental schools are busy practitioners, whose time is most fully occupied by professional duties, but who for the love they bear the profession are willing to give the best of the energy left to them each day to preparation for the duties of the lecture-room. Not one of these gentlemen, however, would say that such effort is the best that he is capable of doing had he more time for preparation and more energy to put into it. This objection can never be overcome until such time as men of wealth will endow these institutions, and thus make it possible for the schools to pay their

professors a salary that will be sufficient to preclude the necessity of keeping up a practice for the sake of the income. Under such circumstances the entire time of the professors could be given to the duties of teaching and of original investigation; conditions which are greatly needed, and devoutly to be hoped for.

Another class of teachers go before their students with evidently some preparation upon the subject to be taught, but frequently side-track themselves over the relation of some pet case in practice, and never get back to the text again that day; while another class, all too numerous, often enter the lecture-room with little or no preparation, and simply talk against time, rambling over the entire field comprehended in the curriculum, and when the students leave the lecture-room they have no more than when they entered it, while their minds have become so befogged by this *hodge-podge* to which they have listened that they have no clear comprehension of the subject supposed to have been taught. This is not an overdrawn picture, for many of you know of like conditions, and the causes which have produced them.

My third objection is based upon the fact that no matter how eminent and well qualified the teacher may be as a lecturer, the students do not obtain such benefit from his wisdom as they have the right to expect and demand, for the reason that it is impossible for the average student—and this is the class that we have to plan for—to remember more than a few of the most striking thoughts presented in each lecture; while upon the other hand, if the student attempts to take notes, he loses at least one-half of the lecture, unless he happens to be proficient in shorthand. In some of our schools the various classes have been in the habit of employing a stenographer to report each lecture upon certain subjects, and then have them printed for the use of the class, as the only means by which they could get the full benefit of the teaching.

The fourth objection which I would raise lies in the fact that, as a rule, the students show their greatest weakness at the time of examination in those subjects in which they have been obliged to depend in a large measure for their information upon a course of lectures. Listening to a course of lectures, and studying the same subject from a suitable text-book, are not to be compared as a means of education.

To remedy these defects in this method of teaching, I would

suggest that each lecturer should furnish to his faculty a full and complete syllabus of his entire course of lectures, and that the same be printed for the use of the students. These should be distributed to the class, one lecture at a time, as may be indicated by the teacher when he goes before his class. In this way the class could readily follow the lecture during its delivery, and be relieved from the necessity of taking notes, which at best are inadequate to a good understanding of the subject. Furthermore, the class should be quizzed upon each lecture by the teacher himself, or by an instructor especially appointed for this purpose, who is in sympathy with him. The syllabus should be used in this work instead of a quiz compendium. By this plan the lecture method might be stripped of many of its objectionable features. The teaching from the lecturer's desk and the work in the quiz-room would then be uniform, and the most would be made out of this system of teaching that the circumstances would permit.

With these improvements in this method of teaching, it would still be far from all that is needed, for many of the defects would remain without a remedy. I firmly believe that our whole system of oral teaching needs to be revolutionized by the introduction of suitable text-books and a system of recitations.

To my mind, the recitation system of instruction is by far the most satisfactory upon all subjects not purely clinical or manipulative. It has been my experience, that students who have been required to study a certain number of pages each day from a suitably prepared text-book, with the assurance that they would be closely quizzed upon each lesson, have shown a much better understanding of the subjects studied than those who have been educated by the old system of didactic lectures.

Furthermore, by the use of carefully prepared text-books, a systematic plan of study is followed, and the subject matter is classified and arranged in a natural order. Material prepared in this manner is much easier to comprehend and to remember, while the student is taught correct methods of thought, and to reason from cause to effect.

By following the recitation method of teaching the best instruction could be obtained from recognized authorities in the various departments to which this plan applies. The selection of the text-books might be placed in the hands of a special committee of the

faculty, who should, after conference with the professors of each department, announce to the students the books that would be required for each school year. In the selection of a faculty, it has been the custom under the old plan to appoint the men of best minds, and of the largest experience in special departments, to work in the lecture-room; while the younger men who have their reputations still to make have been placed—to my mind—in the most important positions, as teachers in the laboratories and the clinic-rooms.

By the adoption of the recitation system of teaching the younger men would be placed in charge of the instruction in the recitation-room, with orders to follow the teachings of the authorized text-book. The application of the knowledge thus gained should be taught in the laboratories and clinic-rooms by the professors themselves, rather than by a corps of demonstrators whose knowledge of and experience in the special subjects to be taught is often of the most limited nature.

With such a change in our system of oral teaching, I believe much greater advancement could be made by the students in the same length of time, and we should have the satisfaction of knowing that they were better qualified for the practice of their profession than by the old method.

In conclusion let me ask,—

Are these suggestions too radical? Are they based upon common sense? Are they practical?

The answer to these questions rests with you.

The CHAIR. In view of the lateness of the hour, the Chair begs to call the attention of members to No. 12 of the Rules of Order. The paper is now open to discussion.

DISCUSSION.

Dr. J. TAFT, Cincinnati, being called upon to open the discussion, said: Some time ago I was requested to prepare a paper on some phase of the educational question. I made some notes, with the expectation of preparing the paper, but it will not be necessary that I should do so now, for the paper we have just heard is so full of suggestions that it ought to be thoroughly discussed; and it is better that your attention should not be diverted to other phases of

the question. We have before us ample material for all the discussion possible at this late hour.

The method of teaching in our dental colleges is undergoing a change, as in other institutions. Improved methods of instruction are being introduced, from the kindergarten to the universities. Is there any reason why the dental colleges should not make similar changes, with a view to their betterment,—to making them more efficient? When an opportunity for improvement offers it should be recognized, if we would keep up with the times and in line with the progress made in other directions. If advances are made along other lines, it is equally important that we should make changes also where they can be made for the better. Those among us who can look back forty or fifty years will recognize that our methods were very primitive—elementary—then. Others can hardly conceive of the change that has been wrought. A special point is that the person seeking to enter our profession shall be thoroughly prepared to do so. In entering upon any line of life certain qualifications are demanded. This rule has not been enforced in our profession as it should have been. Unfortunately the demand has been for the largest number in the classes, regardless of fitness or preliminary training. Great improvement along this line is being made now; more discrimination is being exercised. It has come to be recognized that to make available any line of special education the general education must be as thorough as possible. In some portions of our country a large percentage of the young men are well educated. Grammar schools and high schools are easily accessible. But in other parts of the country opportunities for a good education are more limited; the young men are denied many privileges and opportunities common in other communities. But there is a general awakening; opportunities are increasing; the people are waking up to the realization of the necessity of preliminary education as essential to success in any line of life. It is rare now to find any one who will admit that he places a low estimate on the value of education. In the dental profession, as much as in law or in medicine, it is admitted that progress is in proportion to preparation. In dentistry it is not only finger-craft—manipulative ability—that is needed, but there must be an inculcation of principles, or the best results will not be brought forth. The paper read discusses methods of instruction.

The lecture method should not be abandoned altogether. The study of text-books is good in its place, but too much of it is objectionable, as the mind gets into grooves, follows in the line some one else has worked out; there is no incentive to original thought. Text-books are valuable as works of reference, to corroborate or refute; but to limit the student to the task of committing the contents of so many pages, on which he will be examined by questions, is not education in the true sense of the word. To educate is to draw out, to stimulate thought, not to make the student do just as somebody else has done. Laboratory work is necessary, but it must not be allowed to overshadow didactic methods. Each has its place, and the two should be wisely combined. It is a mistake to discredit the lecture system. The voice and the personality of the lecturer contribute elements not to be found in books. Books have no magnetism; they rouse no enthusiasm; they stamp no living impress upon the minds, upon the character of the student. A teacher, as such, should have certain distinct qualifications; he should have had special training for the position he is to occupy. Unfortunately there has been no such requirement for the teachers in our dental colleges. There should be normal schools for training teachers of dentistry and medicine specially for that work. Then we would have men far above those of us who began in such a simple way in years long gone by.

(Dr. Taft's voice unfortunately gave out at this point, to the regret of the listeners.)

Dr. H. J. McKellops. Why is it, if a man has the education which the speakers have described, that it should be necessary to have a law in every State preventing him from practicing the profession for which he has qualified himself? He may have passed at his school; have his diploma; been practicing for years,—but if he wants to go into another State he must pass an examination like any schoolboy. If he can't pass he must stay at home. The whole system is rotten to the core. If a man is fit to practice in one State, he is just as fit to practice in another.

The Chair. The gentleman's remarks are off the question; they are not germane to the paper under discussion.

Dr. McKellops. The question is education. What is education for, but to enable a man to put in practice what he has learned? The general education that we get in the common schools holds

good the world over. But in dentistry each State is fighting every other State. I want the right to practice as I have the right to live—where I please.

Dr. W. C. BARRETT, Buffalo, N. Y. This is a subject that is very near my heart. I was nominally a teacher long before I knew anything to teach. Before I studied for my profession I was a teacher. When I entered the profession I became a teacher; I sought to impart what I had been able to obtain. There is an error, a mistake in our conception of the word "education,"—that it means *to draw out.* How can we draw out what has never been put in? The conception of drawing out by education is a misconception. A teacher—a successful teacher, a good teacher—must be born a teacher; he cannot be manufactured for the position. He must have the power of impressing upon others his individuality, his energy, his ambition. He must be a man of imperative strength of character, able to impress himself upon his students. He must be qualified for his work, thoroughly familiar with his subject. Now, what is the best method of teaching? I believe with Dr. Taft that the best way is by didactic lectures for the inculcation of basal principles. To the man who is trained in this method of teaching thoughts come up in regular array; definitions are concise; his work is planned in a regular, systematic course. By the magnetism of his own presence he impresses it upon his students as no book, no pale, cold page, no task to be learned can ever do. He must be an earnest man; he must not tell stories, except as they illustrate principles; he must not lower his dignity by mere funny stories, nor undue familiarity. Students will have no respect for your calling if they have no respect for your character. Books are dry; lessons are a task; but the principles inculcated and stamped in by an enthusiastic teacher—one who is competent for his place—will never lose their impress upon the mind and character of the student. Dr. McKellops asks why are the things of which he complains? Because we are now in the tentative stage,—a developmental period. We are reaching out and seeking for light. Dr. Taft, who still stands among us, was one of the very first to engage in this work. Systematic dental education dates back no farther than our own contemporaries. Dr. Taft, who was one of the first in the work, is still at it. All things require time for growth. You forget the

weakness of the teachers; they are but human; they are only practitioners like yourselves. We are doing the best we know how, but we are still in the transition period. Think of the advances that have been made within the compass of your own memory. Look back, say, only twenty-five years ago. The teachers have received no emoluments from their profession. They are so poorly remunerated that they must labor with their hands, day by day, for those dear to them. They are not free from the toil and the cares of daily practice, but I thank God for it, for it keeps me in close touch with those to whom I impart that which I have learned. There is no school of pedagogy for us; it is by daily practice that we must keep pace with the advances that are being made. The dentist occupies high ground; he feels strong rock beneath his feet. The mere pedagogue teaches only; he ceases to advance.

The didactic system is the only system for the present time, when we are teaching that which is changing from week to week, from day to day, almost from hour to hour; it is not yet crystallized into text-books. The teacher should be the most competent man, but too often the college must take the man it can get, not the best one in existence; they must take the men who are available. We are trying to raise the standard of admission, but just now we have to teach the a, b, c's; we cannot teach the higher branches; we cannot give a classical course, but we aim high and will eventually attain the goal. We will yet be an educated body, a scientific body, rising to still higher flights. God knows, the schools are bad enough, but we are doing the best we can. The stream can rise no higher than the fountain-head which is its source.

Is there any position more honorable than that occupied by a Taft? As a rule, are dental teachers all respectable men—well up as a class? I heard one man, who occupies the position of teacher, say (and I blush for him), "I am teaching for the money there is in it." That man will never soar to any great height. The selfish man will never become famous.

Dr. I. N. Carr. I would like to hear Dr. Cowardin express himself on this question.

Dr. L. M. Cowardin. It would require a man of the highest order of mind to enlarge upon the ideas expressed by those who have preceded me. To say that I am in accord with much that

was contained in the paper, and with much that has been said, would but poorly express my views; but I can add nothing to it.

Dr. J. Y. CRAWFORD, Nashville, Tenn. I wish to thank Dr. Marshall for his paper. He writes well, and has made the best argument I have ever heard on the wrong side of the question! I agree with some things that have been said, but there are others that I do not like at all. I like to listen to a man who is capable of telling what little he knows in a way that is pleasing to his audience. Oratory is a force in the councils of the world. Oral teaching is the best method in the world. You can reach men by talking to them as you can in no other way on earth. If a man don't know, he cannot talk. Dr. Barrett is a great orator, but I believe if I had the information that Dr. Barrett possesses I could make a speech too! There are three kinds of men in the dental profession: There is a small, select class of men who can talk very nicely; then there is another small class who can work a little bit, but they can't talk; and then there is a whole lot of men who can neither work well nor talk well.

There are some things about education in this country that need explaining. Dental education is peculiar. A man, to be a good dental surgeon, needs to be a little better educated than for any other profession in the world. He ought to remain longer in college. Why? The solution is simple: Because his future occupation offers a barrier to all subsequent intellectual development! He is going to have the hardest work to make a living. Some one on the outside says, "They all get rich." Do they? The most of those that I know are poor men. So much of our time has to be devoted to manual labor that a man has no opportunity to exercise his mental faculties. A large percentage of operative dentists become mere routine manual laborers. For this reason a man should be an educated man before he becomes a dentist.

Dr. Barrett says we want masters to teach dentistry. Does any one think the American people are wild on the subject of education? We possess the same characteristic destructiveness as in the original savagery from which we came. Training the mind only, without other training, does what savagery does. Here is one man who has the courage to say that he is opposed to educating women to follow the vocations of men. Why? Because it is opposed to maternity. We don't want any long-haired men, nor

any short-haired women. These are questions of political economy; there is an honorable responsibility upon you. I have the courage to avow my convictions, as upon all occasions.

Teaching from text-books is like learning the catechism,—kindergarten work, instead of the work of men acting upon their own responsibility; children poring over their lesson instead of having it impressed upon them, stamped deeply into their minds by the individuality of the teacher. If you introduce the primer method, you will bring into the schools men from the lower classes, men not made for the professions.

A man who is fitted for professional life must be a different man from the common citizen. He stands on a higher plane who devotes himself to dental surgery, the law, or medicine; he stands above the common herd. We must quit getting in men from the workshops. We want to have men who are too proud ever to have stood on the street corner selling peanuts!—too proud to set up in dental parlors on the barber-shop plan!

We condemn the poor tramp because he won't work for a living, but it is because we have made them all master of arts! bachelor of arts!! The poor tramp wants something to eat; give him an axe and let him earn his meal. He don't know how to chop a stick of wood; he'll spend half the day whacking away on a knot, and don't know how to turn the log over and get around it. It reminds me of a poor young dentist who located on a back street and rented a little house with a hall and two rooms, and an office four by six. He hired a "nigger" to cut up a load of wood. When he was through he called out, "Hello! mister, the wood's cut." "All right, John; go up stairs and the doctor'l pull a tooth for you!" The "nigger" race has been emancipated. There are about fifteen thousand in our town. They have been given the opportunity to see the cabin in which their benefactor, Abraham Lincoln, was born. About forty, all told, went to see it! That's the way they're educated. It won't do to try to make doctors of divinity out of everybody. You cannot raise the common herd to higher planes. A tower which is top-heavy will fall over into the ditch.

Dr. BARRETT. In connection with the subject of education, as Chairman of Section VII of the American Association I take pleasure in extending an invitation to all of you to visit the collec-

tion of human and comparative odontology, now on exhibition at the other hotel. I consider it the most valuable scientific collection, in this line, that has ever been put before the world, and I invite you to go through it and note the development of the organs in which you are most interested.

Dr. MARSHALL (to close the discussion). I am more than gratified that my paper has not fallen flat. It was especially designed to call forth discussion, and I did not expect that you would agree with me. I am gratified at the trend the discussion has taken. I quite agree with Dr. Taft that there are certain subjects that can only be taught by the didactic method. Before an investigator in certain lines is ready to publish them in book-form his views are already stale. It needs prompt presentation in didactic form, followed by original discussion. He wants the privilege of presenting his views in the form of lectures. But the fundamental principles of anatomy, physiology, etc., are better taught by the recitation system than by lectures. The ground to be covered is so large that a lecturer would never get through. Let the groundwork be by recitations. Dr. Barrett said that the teacher, like the poet, is born, not made. That is also my idea. There are so very few men who have the eminent qualifications necessary for teaching by the didactic method. The average professor is a busy practitioner who has not time to prepare lectures as they should be prepared; therefore let him avail himself of text-books, the best that are to be had. I expected to stir up Dr. Crawford. He knows I admire his oratory; I enjoy fireworks. But I don't believe that when he is lecturing to his students he adopts that style. He means all that intense earnestness, but I am sure he don't shoot off his fireworks in the class-room. He made a good point for my paper when he said that lack of time and the turmoil and labor in the life of the dental practitioner do not allow time for original work and investigation, or for but very little. Men are too tired when night comes, after a hard day's work, to be able to do much mental work. Original investigations in histology, etc., demand a man's whole time and his freshest vigor. Our teachers will never be able to do what they should do until our colleges are endowed. Then such men as Dr. Black and a few others will be enabled to give all their time to scientific investigations, being paid for it outside of daily practice. A subject demanding such investiga-

tion is pyorrhea alveolaris, but nothing can be attained when but one or two hours a day can be given to the subject. If one or two men in the schools could give all their time to such studies great progress might be made, with results of great practical value to the profession. Dr. Crawford says that the use of text-books would be going back to the primer or kindergarten methods. But there are many text-books in anatomy, physiology, etc., that demand serious, earnest study. The student would find much in such books that would require a teacher to explain it before he could feel that he knew it. Teachers should also do more in the line of teaching students how to apply what they have learned.

On motion, adjourned to 10 A.M.

MORNING SESSION, AUGUST 4.

Called to order according to adjournment; the President in the chair.

The Executive Committee reported the application for active membership of Dr. J. Edwin Boozer, Columbia, S. C., who was duly elected.

Dr. FRANK HOLLAND, Atlanta, Ga., Chairman of Committee on Operative Dentistry, reported three papers: "An Obscure Case," by Wm. Ernest Walker, D.D.S., Pass Christian, Miss.; "Replantation in Pyorrhea Alveolaris," by Robert Eugene Payne, M.D., D.D.S., New York; "The Compatibility of Different Filling-Materials with Tooth-Structure," by Dr. I. N. Carr, Durham, N. C.

On motion, Dr. WALKER read his paper, as follows:

AN OBSCURE CASE.

In January, 1890, Mrs. C. called upon me for treatment of an acute, slight attack of pericementitis of the upper left second molar. I noticed in the roof of the mouth, about midway from the tooth to the median line, an opening about a millimeter in diameter, from which there was a slight discharge of a thick, glassy-looking, tenacious jelly, which was too thick and too ropy to be easily wiped off, but which could be pulled out with the tweezers, and which at that time stood out over the orifice to the height of about two millimeters. The patient's attention was called to the condi-

tion, but she said she did not care to have it treated as it had been there three or four years without causing any trouble, except that about once a year it would swell up to about the size of the end of her thumb, passing away in a few days. The patient is anemic, tall, and thin, and was probably about forty years of age at that time. I saw no more of the case until December, 1894, when she called again for the double purpose of treatment of another attack of pericementitis in the same molar, a tooth which is not decayed and apparently has a live pulp, but more especially to have this peculiar affection attended to, as it was behaving worse than ever before, having at that time the prominence of half of a robin's egg, and so sore that it made deglutition very difficult. I found located on the summit of the prominence, near the orifice, a small pustule about four millimeters in diameter, which I lanced, but which proved to be merely superficial. Pressure caused a discharge from the orifice of the exudation, as above described. I made some parenchymatous injections of an aqueous dilution of iodin, which seemed to press on a deep-seated pocket of the accumulation, which appeared at that time to contain small masses of more solid matter, causing the discharge to resemble frog-spawn. I made an exploration with a probe which entered a little more than one centimeter, seeming to encounter only soft tissues. I then made a deep incision, which let out more of this glairy substance. I then cauterized the wound with silver nitrate crystals every other day, burning principally in the direction from which the discharge came, until I had produced a cylindrical cavity about six millimeters in diameter and about nine millimeters deep, at which time, as I could not detect any further discharge, I concluded I had exterminated the tissues which were producing it. I therefore allowed it to fill up with granulations, having the patient call every few days. I could not discover any recurrence of this peculiar exudation until the surface of the granulation tissue had nearly reached the normal surface, when I was disagreeably surprised to find that instead of one large opening, as described above, there were three small ones, so situated as to form an equilateral triangle of about three millimeters on a side. The patient was then called out of town, and I did not see the case again until February of the present year (1897), when she again presented herself, as the enlargement had returned, though not quite to the dimensions

of 1894, making deglutition again difficult and painful. Although there was no pustule at that time, there was almost constant slight pain, apparently due to accumulation of the substance, too thick for free discharge. At that time I simply pressed out the accumulation and painted it with tinct. iodin, which I have since continued once or twice a week, with the exception of the month of March. While this has slightly reduced the size of the swelling, it has not stopped the discharge, and there are now eleven small openings.

In 1894 I sent a specimen of the discharge to a microscopist, who, however, failed to discover anything more than mucus. In April, 1897, I had a young medical graduate, who, however, is new in working with the microscope, examine a specimen of the discharge, which he examined with 900 magnification, after staining by a modification of Gabbett's method as follows: Put in carbol-fuchsin solution and hold over alcohol flame until it bubbles; wash with water; put in one part hydrochloric acid, three parts water, for ten or twelve seconds; wash with water. Put in solution methyl blue sufficient length of time to stain (about fifteen seconds); wash in water and dry between layers of filter paper. He found what we took to be tubercle bacilli. In the same month I resected a specimen from the center of the affected area which measured about five millimeters in diameter, and included most of the stomata; which specimen I sent, together with a specimen of the discharge, to a professor of bacteriology and histology, who is also a specialist in this line of work. He reports, "Not tubercular," and says, "As I suspected, I find the growth to be malignant, probably carcinoma; the specimen was small, and if you wish to send another I will verify the diagnosis, but I do not anticipate any change. I would advise a more radical operation for removal than you have yet attempted. See if you can find any enlarged glands in the vicinity; if so, remove them also. If metastasis is far advanced, an operation would probably be contraindicated."

I did not send another specimen, as cutting out the piece sent was as much irritation as I cared to subject the parts to, fearing that it might be malignant, and knowing that removing part of a malignant growth is not often justifiable. I have not made "a more radical operation," because I have not felt that the indications were such as to justify such a procedure; but I have not dismissed

the case, as I think it one which requires watching. I have instituted this weekly treatment with iodin more for the purpose of bringing the patient to the office regularly than from any positive benefit to be derived from it; while it is doing no harm it may do some good, and seems to hold the case in *statu quo*, so far as any obvious enlargement is concerned, though, of course, I do not know what is going on beneath the surface. The little openings may be on the increase. I had not counted them since 1894, when there were three, till August 1, 1897, in order to include in this report a statement of their number, when I was surprised to find there were eleven, though I did not suppose there were more than five or six.

I now present you with two casts of the case, No. 1 having been taken two weeks after the resection for microscopic examination; No. 2 taken on August 1. You will observe that the median line is slightly deflected from the affected side; that there is a fullness of the right side, and, further, that there is still a slight depression indicating the point from which the section was removed in April. The dragged appearance about this depression was produced not by dragging, but is the impression of the exudate which was on the surface when the impression was taken. The case has puzzled me, and I have come for advice. I hope the length of the report is justifiable, as I have not been able to find anywhere a report of a similar case. I hope it will receive full discussion.

DISCUSSION.

Dr. JOHN S. MARSHALL, having been requested to open the discussion of this paper, said, It is extremely difficult to make a diagnosis in cases of this character from mere description without seeing the patient. From the description given I should be inclined to say that it is not tubercular. There would be no difficulty in finding the tubercle bacillus if present. I do not think it can have been malignant, to begin with, as it has been in existence too many years. It strikes me as being a cyst which may have originated from a molar tooth,—the palatal root; it might very possibly be due to an undeveloped third molar. From the character of the discharge as described I should judge it was due to cystic degeneration. Aside from that, it would be extremely difficult to reach any conclusion as to the character of the disease from

mere verbal description. If it is the result of an unerupted tooth, there would be no difficulty in determining that fact. We do not know, of course, how careful an examination has been made. (To Dr. Walker.) Is the molar tooth vital?

Dr. WALKER. It responds to every test for vitality and is not decayed.

Dr. MARSHALL. That eliminates the possibility of its being the result of an abscess from a pulpless tooth. I do not feel like saying anything further, not having seen the patient.

Dr. J. P. CORLEY. Are there no symptoms of antral trouble?

Dr. WALKER. None, and I have probed carefully. The probe does not enter the antral cavity, and it encounters nothing but soft tissues.

Dr. EGGLESTON. Has there been any pain?

Dr. WALKER. The patient stated that during the first four years she experienced no inconvenience whatever, except from the occasional swelling. There was no pain at all. In 1894 the swelling was so great as to occasion great difficulty in swallowing, and some pain due to inflammation.

Dr. SMITH, of Massachusetts. I hardly think it can be malignant, as there has been no pain and its progress being so very slow. It may, however, have taken on a malignant character. I would suggest that an X-ray photograph be taken, to see what would be revealed.

Dr. T. W. BROPHY, Chicago. It would be difficult to express an opinion any more definite than that of Dr. Marshall. The diagnosis is not sufficiently positive for discrimination without seeing the patient, but as far as it goes I agree with the opinion expressed by Dr. Marshall,—that it results from the formation of a cyst. The gelatinous discharge described is that peculiar to cysts of this region. I would recommend more thorough exploration and a more extensive operation; that the cystic cavity be opened and the lining membrane thoroughly removed, the cavity then well packed with gauze, with a liberal opening for drainage. Granulations would eventually fill up the cavity and the patient be cured. Tumors of the type described are very common, and the only rational treatment is to open liberally in order to make an ocular examination. It can then be removed with certainty. It may be that a retained deciduous or a supernumerary tooth

forms the nucleus of the cyst. I would recommend a liberal opening and curetting of the cavity.

Dr. GORDON WHITE, Nashville. The case described by Dr. Walker resembles very closely a case I had a number of years ago, which I found, on opening, to be due to a supernumerary tooth. It had given trouble for years. Another similar case was due to an unerupted bicuspid. I did not have any microscopic examination made of the tissues, but I fancy that if Dr. Walker will go further with his exploration he will find that it is due to an unerupted tooth.

Dr. W. T. ARRINGTON, Memphis, Tenn. I had a case almost parallel to the one described in the paper. The exudation was of the same character. Local treatment did no good. There was no decay, no fillings, no tartar. Being unable to locate any cause for the trouble, I decided to open into the tooth nearest the seat of the trouble, and found that it was dead. The mere fact that there is no decay is not always proof that there is not a dead tooth. I believe that if Dr. Walker would remove that tooth the patient would get well.

Dr. WALKER, to close the discussion, said that he had nothing to add to what he had said of the case in the paper. He thanked the members for the discussion of the case, and for the suggestions offered.

Dr. ROBERT E. PAYNE, of New York, N. Y., then presented the following paper:

REPLANTATION IN PYORRHEA ALVEOLARIS, WITH DESCRIPTION OF A METHOD FOR CORRECTING MALPOSED TEETH AND SPLINTING LOOSE TEETH IN POSITION UNTIL FIRM.

In the history of implantation, transplantation, and replantation of the natural teeth, probably replantation is the most successful. Innumerable replantations have been reported in good condition at the end of twelve and fifteen years.

This may be accounted for by the fact that the tooth is immediately replaced, that it fits the socket accurately, and that a portion of the membrane remains intact. If there is no infection these membranes act as a scaffolding, or not unlike a sponge graft, and

in them loops of vessels quickly form, thus aiding in the formation of a provisional callus, which later becomes dense bone.

In pyorrhea alveolaris, when the teeth have become very loose and partly pushed out of their sockets, assuming distortions and malpositions by elongation and mal-occlusion, it becomes necessary to use extreme measures to correct the condition. If not corrected and treated the case is hopeless, and the teeth drop out one by one. Many of the conditions can be corrected by persistent effort. It requires sincerity of purpose, patience, and persistent care while the case is in hand to effect a cure.

The busy general practitioner will not give the cases time and attention. He wants quick results and will not be bothered; therefore recommends extracting as a quick way out of trouble, when he should turn them over to the specialist, or one willing to give the time and familiar with the surgical treatment this disease requires.

I have not read in any of the journals an article outlining the plan of treatment I usually follow. Many well-written articles discuss probable causes at length, and devote a very brief page to treatment. Therefore, believing that I go to the surgical limit in my efforts to effect a cure, I shall give in minute detail description of a case that covers the ground most thoroughly. I will include a method of correcting malpositions, projecting anterior teeth, and changing ill-shapen teeth, together with the manner of splinting, so important to obtain desired results.

History.

Mrs. A., New York, forty; well-to-do, and willing to pay for treatment, consulted three or four reputable busy practitioners during past three years for treatment of pyorrhea. She was informed that three of the front teeth must be extracted and replaced by a plate. She refused to wear a plate, and the family dentist, at her request, wired two of the teeth in, that they might last a little longer. (Herewith are casts showing mal-occlusion, deformity, and the wire in the central incisor and bicuspid to keep them from dropping out.)

She was referred to me for special treatment. There was marked mal-occlusion,—the upper and lower front teeth are crowded between the cuspids, the lower lateral laps over the cuspid and pushes the upper central and lateral forward, producing

a very unpleasing effect. This long tooth had been a source of annoyance to the patient for years. It was so prominent that it was included in her passport description. Here was a deformity to overcome and a disease to eradicate.

All the teeth were loose; the upper right central, lateral, and left bicuspid were almost out. These teeth were elongated, and their sockets almost obliterated. Careful examination and testing revealed five dead pulps, gums congested and painful, and discharging pus.

Treatment.

Two of the dead pulps were in molars. These were opened and treated in the usual manner; that is to say, contents of pulp-chambers and canal sterilized with twenty-five per cent. pyrozone. I usually open up the tooth, place pyrozone in on piece of cotton, and place my thumb over opening. This drives it into root, and if abscessed will sterilize beyond the apex of root. Care must be taken to use a small quantity and not close the opening too long, or pain will be inflicted.

Pyrozone is not a caustic in the true sense. It does not destroy normal tissue, for circulation is soon resumed after its application. It will penetrate and destroy bacteria and change ptomaines and decomposing compounds, so that a tooth so sterilized may be soon sealed.

The roots of these teeth after treatment were filled with paraffin and salol. The next step was to take three teeth at a time and, by means of the Riggs and Younger scalers, remove most thoroughly the calculus around the roots. This was rendered almost painless by the aid of a two per cent. cocain solution containing a third glycerol and a few drops iodin, applied with a curved needle, blunt point, placed in bottom of pockets. A very perfect anesthesia can be obtained in this manner.

Pockets were now washed out with boiled water (warm), with a long, curved syringe, and with a blunt metal point a drop or two of five per cent. pyrozone is introduced in the pocket. This in turn was washed out. The gum was now dried, and also the pocket, as far as possible. With another minim syringe, at the bottom of the pockets was placed two or three drops of concentrated solution of lactic acid. This finished the three teeth, with the exception of splinting, which I will describe later.

At a subsequent sitting the roots of three more were treated, until calculus was most thoroughly removed from all the teeth, and pockets treated. A few drops of pyrozone, three per cent., applied by means of a tooth-brush, were prescribed for morning and evening use, and a mouth-wash during day.

The next step was to reduce the size of the four lower incisors. By examining the models you will see what is meant by this. They are made narrower, the cutting-edges evened up, and all drawn in position by means of a C. & D. silk twist. The threads are renewed two or three times a week, and if tied carefully and taut will shrink, drawing the teeth in place. The lower teeth in this case were corrected in shape at one sitting and drawn in position in two weeks.

They were splinted by being bound together with "oo" silk twist,—the finest strand obtainable, but when waxed it is quite strong; and if properly put on and square knots used will hold the teeth securely ten to twenty days before it becomes necessary to renew them.

The next step was to inject cocain around the three loose teeth and extract, which I could have done with my fingers. The pulps were dead in all. The teeth were sterilized, contents of pulp-chamber removed, root-canals filled with paraffin and salol. The gum on each side of the sockets from which the teeth were extracted was injected with five minims of a two per cent. cocain solution. The sockets were sterilized with pyrozone, and with Ottolengui bone-drill the three sockets deepened sufficiently to receive the teeth. The bony tissue was very dense at the bottom of the partly obliterated sockets. The upper right central had been ground off from time to time as it elongated, and when replaced in its new socket it was too short; but by reducing the size of the upper four incisors I was enabled to get them in the arch between the cuspids. These were splinted for thirty days, and then a gold plate swaged to fit over the cutting edges, as shown by the model. This plate was worn until the teeth became rigid,—about three weeks. The teeth being mature, hard, and sound have every chance for years of comfort and usefulness, besides being beautiful and all her own.

The result is quite pleasing to the patient, for she never for a moment thought it possible to correct the irregular teeth in treat-

ing the disease, when, as a matter of fact, this was necessary to effect a cure.

I would call attention to the absolute necessity for carrying out the plan of treatment as detailed to get a result. Summarized, it is as follows:

Treatment of pulp-cavities and filling roots;

Reducing size of teeth to correct irregularity, correcting malocclusion thereby;

Deepening sockets and replanting three teeth, after removing cause of elongation;

Removing serumal calculus;

Splinting and, above all, surgical cleanliness throughout as far as possible.

Calcic phosphate was prescribed in this case for thirty days, to aid the cell in the rapid deposit of bone around the roots of the teeth.

Great care should be exercised in deepening the sockets to not destroy the outer thin wall.

To make sure that the teeth replanted are surgically clean, I place a few fine crystals of resorcin on the apex of the root, just before placing it in the socket. These crystals dissolve readily, and the small wound heals quickly with very slight soreness. The teeth become firm in thirty to sixty days after splinting.

DISCUSSION.

Dr. J. Y. CRAWFORD. Before proceeding to the discussion of the paper read, I ask permission to make certain statements relative to proceedings had at our meeting in Asheville, N. C., resulting in the peremptory expulsion from this Association of Dr. B. E. Holcomb, of Tarbon, N. C. I wish these letters, which the Secretary will please read, to be made a part of the records of this Association.

The Secretary then read the letters.

[NOTE.—Upon request the letters were returned to Dr. Holcomb.—S. W. FOSTER, Secretary.]

The TREASURER. I received a letter from Dr. Holcomb, asking me what he owed the Association. I replied that, as he had been expelled from the Association, he owed nothing, in my judgment.

Dr. J. S. THOMPSON. I do not see that there is anything in what

has been read that exonerates Dr. Holcomb from the charges against him.

Dr. CRAWFORD. Dr. Griffith had considerable correspondence on the subject, and the letters fully set forth the mistakes made in the charges. I understand that the North Carolina Board has readjusted the matter, and Dr. Griffith, Secretary of the North Carolina State Board, states that he will do all he can to have Dr. Holcomb reinstated. I am satisfied that the whole thing was a mistake, and I earnestly join Dr. Griffith in the desire that he may be honorably reinstated in the Southern Dental Association.

Dr. WRIGHT. What is Dr. Holcomb's status in the matter of dues?

The TREASURER. His dues have been paid in full, with the exception of last year and the present meeting.

The SECRETARY. I think it would be very unjust to claim dues from Dr. Holcomb for the time that he was under a cloud. On the contrary, I think we owe him an apology.

The CHAIR. All in favor of the reinstatement of Dr. B. E. Holcomb, as per statements made by Dr. Crawford, will signify the same by saying "aye."

Adopted unanimously.

Dr. Holcomb was therefore declared reinstated in honorable membership in the Southern Dental Association.

Dr. CRAWFORD. I move that his dues for last year be remitted.

The SECRETARY. How can we claim dues for the year that he was not a member?

The CHAIR rules that Dr. Holcomb is indebted to the Association only for his dues for the present meeting.

Dr. I. N. CARR then read the following paper:

THE COMPATIBILITY OF DIFFERENT FILLING-MATERIALS WITH TOOTH-STRUCTURE.

The subject of this paper is not new by any means, but there are certain basic principles which should govern us in the selection of materials for filling teeth that I think are very often overlooked by the majority of us who are daily engaged in a conscientious effort to preserve the teeth of our patients. The purpose of this paper, therefore, is to discuss the question from a scientific standpoint, and endeavor thereby to arrive at some definite conclusion. The

use of gold, tin, and amalgam for filling teeth is almost as old as dentistry itself, and the peculiar characteristics each possesses have been discussed many times in our society meetings; but since the histologists began their investigations into the minute structure of the teeth, and the use of the microscope by ourselves in corroborating their statements, we are enabled to discuss the subject more intelligently and from a really scientific standpoint. We must first know the internal structure of a tooth, and how it is nourished and supported. Now, what are the facts revealed to us by the scientific investigations along this line made by such men as Black, Williams, Bödecker, Heitzmann, and others? These men nearly all agree that the teeth, although apparently so solid and dense, do not differ greatly or materially from other organs of the body; the processes of waste and repair differ only in degree, and not in kind in the whole economy. We are told that water and gases make up ninety-five per cent. of the entire body, and Dr. Black, in one of his recent valuable articles, tells us that the dentin of a tooth contains nearly forty per cent. of organic matter and water, and that the only part that seems to be wanting in organic matter is the enamel, which, as we all know, is a very small portion of the whole tooth-structure, and does not therefore enter into the problem under discussion, its edges generally being the only part in contact with the filling-material.

The teeth being vital structures, are nourished and supported in the same way as all other organs of the body. This fact being recognized, the question naturally arises, "What treatment should they receive at the hands of intelligent dentists? What is the underlying principle to govern in the method employed to arrest and prevent decay?" As has been well said by another, "If the physiologist and the microscopist agree as to the structure and function, it would seem that there might be a basic or fundamental principle to determine the method of operation and the selection of tooth-stopping material. The method adopted more than a quarter of a century ago, and which is at present employed, does not accord with the teachings of the physiologist and the microscopist; it is in direct opposition to natural law. Each new discovery in the minute structure of the teeth makes this more plain; pounding the teeth with a mallet cannot be defended on scientific grounds, and yet we all do it more or less. No one would think of

attempting to arrest and prevent disintegration in any other vital organ by abrasion." This leads us to the consideration of filling-materials. In regard to gold and its incompatibility as a filling-material, much has been said. Professor Flagg goes so far as to say that, in proportion as teeth need saving, gold is the worst material to use. This statement is altogether too broad and sweeping; it does not take into consideration the difference between cohesive and non-cohesive gold. There is much difference in the preserving qualities of the two. Cohesive gold resists manipulation. This resistance is due to the law that all crystalline bodies, when unobstructed, run into spherical form, the tendency is, as we sometimes say, to ball,—hard to keep the first piece in place unless you have a very deep undercut or retaining-pit. We know that the process of crystallization is from within outwards. You see this law illustrated in water freezing in any confined space; it bulges outward and breaks the vessel which contained it. When you pound gold with a mallet you increase the crystallization. Now, as we have already observed, the dentin is a living structure made up of forty per cent. of organic matter and water. Here you have in the use of cohesive gold a crystalline body coming in contact with a fibrous one, and this being so, where, I ask, is the compatibility of the two substances? The filling-material should correspond and be in harmony with tooth-substance, and should not depend entirely upon the mechanical structure of the cavity to hold it. Wedl says that there is a substance in the interglobular space called amorphous, or structureless, substance. A filling to be in harmony with this substance should be amorphous, or structureless, in its composition; such are tin and gutta-percha. Non-cohesive gold, while not as compatible with tooth-structure as tin, makes a good foundation, a good covering for the dentin, is more or less structureless, or, as we would sometimes say, "it is dead soft," but the union between it and cohesive gold is only mechanical, while with tin, under certain conditions, it will form apparently a solid mass; and this is brought about not by interlacing or incorporating one into the other, but by affinity secured by simple contact. This combination makes an ideal filling. As to amalgam, the same argument applies as to cohesive gold. Its granular character makes it easy for it to absorb the amorphous substances in the interglobular spaces that are needed by nature to nourish the

tooth,—to assist in repairing the damage done by the ravages of decay. Another objection to amalgam is the carelessness with which it is often used. Cavities are not as thoroughly prepared as when gold is used, and often there is too much mercury used in mixing. But in some respects it is a valuable adjunct, and, whatever we may say against it, we all use it, and for the reason that so many of our patients could not afford gold; and there are cavities, too, where it would be almost impossible to make a filling with anything else than a plastic. To sum up the matter in a few words, tin foil covering the floor of the cavity, with cohesive gold to finish, is the best filling-material known for permanent work. Amalgam answers a purpose, and, until we have something better that is cheap, it would be very hard to get along without it. I do not believe it compares with non-cohesive gold as a tooth-saver.

The paper was opened for discussion.

Dr. E. P. BEADLES. I desire to introduce to the Association Dr. Walker, a prominent physician of Virginia.

Dr. Walker then addressed the Association on the relationship between dentistry and general medicine. He said that the statement that most of the diseases to which humanity is liable have their origin in the stomach is true to a certain extent. As ptyalin, the active principle of the saliva, is an essential factor in digestion, the thorough mastication of food is very important, as digestion cannot be properly carried on if defective teeth interfere with mastication, preventing the proper admixture of ptyalin. Another result of diseased teeth and gums is that the food is taken into the stomach loaded with bacteria, which find in the alimentary canal abundance of pabulum for their continued existence and increase. Thus an active element of disease is found in auto-infection from diseased teeth. He said that not infrequently his first step was to call in the services of the learned dentist, whose assistance he had found invaluable. Many diseases, neuroses, abscesses, etc., require the skill of the dentist more than the knowledge of the physician. Dr. Walker concluded his address with wishes for a harmonious, beneficial meeting.

The Executive Committee then recommended the following for active membership: Drs. W. H. Ewald, Portsmouth, Va.; J. W. Smith, Baltimore, Md.; J. V. Haller, Wytheville, Va.; George T.

Hardy, Baltimore, Md.; Thomas E. Craddock, Lynchburg, Va.; A. B. King, Baltimore, Md.; Joseph Bauer, New Orleans, La.

On motion, the rules were suspended, and the Secretary cast the unanimous vote of the Association in favor of these new members.

Dr. H. E. BEACH. A remark made by the gentleman who last occupied the floor calls to my mind a statement made by a learned professor in Philadelphia, in 1869. Lecturing on diseases of the alimentary canal, he said that in his opinion four-fifths of the human family died from some disease of the alimentary canal. To-day I make the statement—and if it can be successfully contradicted I would like to see it done—that three-fourths of all the diseases of the alimentary canal have their origin in some pathological condition of the mouth. If this fact was recognized by physicians, three-fourths or four-fifths of the present mortality of the human race could be avoided, or greatly lessened, by keeping the mouth in a healthy condition.

Discussion of paper on operative dentistry continued.

Dr. COWARDIN. I did not hear the paper on replantation as a cure for pyorrhea alveolaris; it is an interesting suggestion, and I regret that I did not hear the paper. In regard to Dr. Carr's paper on the compatibility of filling-materials with tooth-structure, the question, when properly analyzed, resolves itself simply into that of the conducting power of the material employed. Those materials are best which have the least power of conducting thermal changes; that is, they are the most agreeable; but, unfortunately, the materials which are best in that respect do not have sufficient power of resistance to attrition. I have found, as the result of twenty-three years of practice, that much depends upon the idiosyncrasies of patients. Where the teeth are extremely sensitive to excavation a non-conductive substance must be used for filling. On the other hand, there are teeth that are not susceptible to pain in excavating, hardly sufficiently so to determine that they are vital teeth, and yet within forty-eight hours after they may develop such serious neuroses as to necessitate removal of the filling. Thus, the idiosyncrasies of patients and the different character of the various filling-materials land us in a maze from which it is difficult to extricate ourselves. It should be the rule of every thoughtful operator to interpose some non-conducting substance between a conductive filling and sensitive tooth-structure. This has been my

practice for the past ten years, and it is exceedingly rare that I have any after-neuroses due to thermal changes. This I attribute to the fact that I take advantage of the saving qualities of gutta-percha or the cements interposed between permanent fillings and tooth-substance. With thoughtfulness along these lines I am sure that we can accomplish the best results. Gutta-percha has a considerable range of expansion and contraction, through heat and cold in the mouth, and should therefore not be used in close proximity to the pulp. I wish to make one statement to prevent certain ideas advanced by Dr. Carr from misleading our younger members. I contend that filling teeth does not prevent decay. To fill a tooth is simply to arrest decay, not to prevent it. A filling which is perfectly adapted to the walls of a cavity will arrest further decay under proper conditions, but it must be borne in mind that, unless germicides are used in the bottom of the cavity to arrest further acid fermentation, the filling will not arrest decay.

You may fill as perfectly as you can, and polish as bright as you may, but vitiated fluids and lactic acid formation will continue to break down tooth-structure. I have a patient now who makes faithful use of antiseptics and germicides, for whom I put in fillings with all the skill I possess, but the patient is continually presenting to me new cavities. So I say filling teeth does not prevent decay. As a profession we should strain every nerve, be constantly on the alert; our only hope lies in finding something that will destroy the bacteria that give rise to the fermentation that causes decay of the teeth. Not until the whole human family resolves itself into a sanitary organization, living according to nature's laws, and so keeping the organs of secretion in perfect condition, will the teeth be free from decay.

Dr. GORDON WHITE. In the past sixteen years I have had considerable experience in the treatment of pyorrhea alveolaris, and I will say that, unless you are gifted with the greatest patience and perseverance, you have very little to hope for in the treatment of pyorrhea cases. Dr. Payne has presented some interesting models, and he has evidently had very happy results and will undoubtedly prolong the usefulness of these teeth for many years. I have never known any cases of positive cure, but the usefulness of the teeth can be prolonged. I have a case in the mouth of my own mother. The left upper cuspid was very loose fifteen years ago;

the anterior plate of bone was destroyed for one-half the length of the root. It has been necessary to treat it three times since that time. I had occasion to see it recently, and to-day that tooth is still in position and as firm as it became after the first treatment, fifteen years ago. Its condition was such at that time that it would have been lost within a few months but for the treatment then given. I do not believe that we can ever entirely eradicate the disease, but, with the co-operation of the patient, we can prolong the usefulness of the teeth. I have other patients that have been under my care for the treatment of this disease for ten and fifteen years. Those teeth are as firm to-day as after the first course of treatment, but, unless you can secure the co-operation of the patient and your own conscientious perseverance, don't undertake to treat pyorrhea. I use, with the most satisfactory results, the lactic acid treatment. When the roots of the teeth are very sensitive I invariably use the silver lactate, but this offers no advantages except where the roots are very sensitive. It is not desirable to use the powder dry in the pockets, as it is not soluble in less than fifteen times its own weight of water, so that it becomes a foreign body in the pocket and is liable to produce great irritation. I used the dry powder at first, but I found that it aggravated the condition of the gums, and on examination I found lumps of silver lactate as hard as concretions of tartar. I now use it only in saturated solution. In many cases it proves to be a most excellent remedy. I do not claim that I am always successful,—that I don't lose some teeth,—but I am not one of those who say treatment is of no use; better have the teeth out at once and wear a plate. I always hope for good results. For a number of years I have been using silk thread ligatures with great satisfaction. The twist of the silk gives it great elasticity; it shrinks in a few hours and holds the teeth in position very firmly. I know of nothing else that is so efficacious. I have learned more about the treatment of pyorrhea alveolaris from Dr. Younger, and especially in the use of silk ligatures and the application of lactic acid, than from any one else in the world. Dr. Clements, of Mississippi, has recently given a new name to this disease, and it is not a bad one, though I do not know whether or not it is correct. He calls it hypercalcic cementosis. His article, which is a very good one, was read before the Mississippi Dental Association and is pub-

lished in the *Dental Headlight*, and will be found well worth reading.

Dr. ———. Does silver lactate discolor the tissues?

Dr. WHITE. It does to some extent, but not so much as the silver nitrate. But in our treatment of this disease more depends upon the thoroughness of surgical treatment than upon anything else. I am sorry I could not bring my little instruments with me, but they are in the hands of The S. S. White Company, who are making more of them.

Dr. G. J. FRIEDRICHS. I never could comprehend the object in this thorough removal of deposits so insisted upon, nor can I see how it can be thought possible that there will ever be adhesion again between the root and the walls of the socket when the membrane so absolutely essential to the union has been destroyed by this surgical operation. Readhesion is not possible.

Dr. I. N. CARR. We would like to hear from Dr. B. F. Arrington on this subject. I know he has had great success in the treatment of pyorrhea cases with sulfuric acid. It is very true that if the peridental membrane has been dislodged no method of treatment will secure reunion. But, by Dr. Arrington's method, he gets healthy granulations and reattachment. Sulfuric acid does not attack anything but diseased tissue.

Dr. B. F. ARRINGTON. As it is upon the program that I am to clinic on this subject, I shall not speak at present. I have a paper prepared for publication on the treatment of pyorrhea, which, if agreeable, I will read. I differ from Dr. White in his belief that the gum-tissue will ever reunite when once the union has been destroyed. It is simply a matter of impossibility. It can't be done. There will never be the union that there was originally. The gum-tissue may be made to contract and hug the tooth and enable it to render good service, but the gum will never reunite with the tooth. Again, it is impossible to treat this disease, and cure it, with all the remedies at our command, unless all deposits upon the teeth are thoroughly removed. I will clinic to-morrow and display my instruments, which are very effectual; but I differ from those who contend there will be a reunion of the parts.

Dr. EGGLESTON, Richmond, Va. I should like to ask Dr. White if the silver lactate is applied clear to the apex of the root; also, if it acts as well as the silver nitrate. In the pockets, do you apply it

as far down as you can get it? Does it stop the formation of pus? Is there a reunion of the gum with the tooth?

Dr. WHITE. The formation of pus will not be stopped unless all the deposit is very thoroughly removed. I know that there is a contraction of the gum, if you choose to so call it, so close that you cannot pass the smallest instrument between the gum and the tooth without causing great pain. It may not be technically a union, but practically it is so. We do not remove the membrane, but only the deposits.

Dr. W. E. WALKER. Dr. Holland, having been called away, has asked me to take his place on this committee. I will ask Dr. Arrington if he is ready to read the paper of which he spoke?

Dr. RICHARDS. I speak to a point of order. Dr. Arrington stated that his paper was "prepared for publication." If the paper is read here it will belong to the Association, and must be published in our Transactions.

Dr. WALKER. Dr. Arrington stated that it had been prepared for publication, not that it had been given to any publishers.

Dr. ARRINGTON. I should decline to read the paper if it has to be published by The S. S. White Company, as in the matter of a paper which I prepared by request, and read before a joint meeting of the Washington City and Maryland Dental Societies, I was placed in a wrong light by that company before the readers of their journal. I should not consent to read my paper here unless I can retain control of its publication.

Dr. H. E. BEACH. It is not yet known how or by whom the Transactions of this meeting will be published. No contract with any publisher has yet been made. Any paper, however, that is read before this Association becomes the absolute property of the Association, and it is responsible for its publication, and will be published in accordance with the requirements of the Committee on Publication. No one knows as yet how, or by whom, it will be published.

Dr. ARRINGTON. I prefer not to take any chances. I have been treated badly once, and will not risk it again.

Dr. J. S. MARSHALL. Some unfortunate expressions have been used in the discussion of the papers read which will not read well in our minutes. Gentlemen have spoken of the "secretion" and the "excretion" of pus. These expressions are not correct. Pus is

not a secretion nor an excretion. It is a product, the result of the death of leucocytes. It is not scientific to speak of the secretion of pus. I desire to correct it that it may not go on record as having been used here.

Dr. QUATTLEBAUM. Will Dr. Marshall give us a better word?

Dr. MARSHALL. The word "formation" covers it.

Dr. BEACH. We have two papers before us for discussion. I do not know that anything new has yet been offered us on the subjects of the paper, except that Dr. Gordon White has spoken of the application of a medicament that had not yet been before us for discussion by this Association. There is one fixed fact to be borne in mind: tissues once destroyed by the disease known as pyorrhea are never restored. I do not wish to discourage any enthusiast, and hope something will yet be discovered that will wipe this disease out of existence. I do not think the treatment has yet been found that will make a radical cure of pyorrhea. Ten years ago I made the statement that genuine pyorrhea alveolaris was never cured, and I then offered one thousand dollars to any one who would present one case of pure pyorrhea that two years after treatment was in a perfectly healthy condition. I have never known a case to remain healthy for two years. I know of cases where progress has been checked,—the patient made comfortable. For ten, fifteen, or twenty years the teeth may be kept in a condition more desirable than if there had been no treatment. But there is a vast difference between checking the progress of a disease and eradicating it. I hope to see the day when this can be done with pyorrhea. There is a great difference between pyorrhea alveolaris and the mere presence of calcic deposits on a tooth. We all know that when tartar deposits on the necks of the teeth it exerts a destructive influence upon the peridental membrane, causing resorption of the gums, which may present many of the characteristics of pyorrhea, but, by the removal of the cause of irritation and keeping the teeth in a reasonably cleanly condition, the gum will heal of itself. Pyorrhea is a very different thing from the mere presence of calcic deposits. We may have deposits on the teeth in pyorrhea, but the deposits do not constitute the disease. Dr. Cowardin said that filling teeth does not prevent decay. I would like him to explain whether he refers to the prevention of decay where the tooth has been filled, or in some other locality?

Dr. COWARDIN. I said it does not prevent decay; it arrests it.

Dr. BEACH. For how long?

Dr. COWARDIN. That depends upon the hygienic condition of the mouth.

Dr. BEACH. If it is arrested for forty years?

Dr. COWARDIN. I said that we must be on the *qui vive* for something to act as a positive germicide.

Dr. BEACH. He said there was a very fine point there. Well, if I can *arrest* decay for forty years I am satisfied with that. But if it is to be for only a few months, then I am not satisfied. I say that filling will prevent, does prevent, decay. There are some gentlemen here who have seen teeth that were filled thirty or forty years ago (I do not say you filled them yourselves! but you have seen teeth that somebody else filled forty years ago), and that are doing good service now. The teeth were decayed then; any further decay has been prevented. The tooth was put in such a condition that it was not so liable to decay as it was before it was filled. I fill teeth to prevent any further decay in that locality.

I must protest against the practice of lining cavities with cement to prevent them from being affected by thermal changes in case of sensitive dentin. When the pulp is nearly exposed it is the worst possible practice; if anything, I would interpose something between the thin layer of dentin and the cement. It eliminates phosphoric acid and affects the pulp injuriously. Cement is not fit to go next to the dentin when the pulp is nearly exposed. Gutta-percha is much better. From its resinous nature, pine-tree resin, in a refined state, mixed with chloroform or alcohol, and spread thickly in the bottom of the cavity, is still better; then you can put cement over that. It is not susceptible to thermal changes; it is impenetrable by gases. As a therapeutic agent there is nothing equal to tin foil; it is too soft to resist mastication, but it is an excellent lining for cavities to be covered with gold.

Dr. COWARDIN. I rise to a question of personal privilege. The gentleman misrepresents. I could not in the limited time allowed me cover the whole ground, and I did not allude to pulp-capping. It is self-evident that I would not advise putting cement in close proximity to the pulps. I do not wish that to be understood as my idea by any means.

Dr. BEACH. I understand the gentleman to say that he used

cement to line the cavity, for the protection of sensitive dentin, which, in my opinion, would place it in too close proximity to the pulp.

Dr. COWARDIN. I hope my remarks did not convey the idea that I would place it in close proximity to the pulp.

Dr. J. P. CORLEY. After all that has been said I do not consider the treatment of pure pyorrhea so very difficult. You have only to extract the tooth, and you cure it every time. But I do not claim the gentleman's thousand dollars for giving this method of treatment, nor do I mean to say that I extract the teeth in every case of pyorrhea. What is the definition of pyorrhea, and what does he consider *a cure?* To cure, must we absolutely obliterate the foot-prints of the disease?

Dr. BEACH. It must be eradicated to the extent that it does not return within two years.

Dr. CORLEY. If the physician was required to keep his patients well for two years after curing them of typhoid fever, I do not believe we would have many doctors.

At this point the Secretary read the following communication:

To the Southern Dental Association:

GENTLEMEN,—I am instructed by the American Dental Association to gratefully acknowledge the courteous invitation of your body to attend your meetings and clinics, and to cordially extend to you an invitation to meet with us in our meetings, with the privileges of the floor.

GEO. H. CUSHING, *Secretary.*

Dr. J. S. MARSHALL. There is one thing to be taken into consideration in considering the etiology of pyorrhea alveolaris that has not been mentioned, and that is senile changes. I think that in most of our cases we will find that the patients are past middle life. Dr. C. N. Peirce is here, and he is familiar with my views on the subject. If we go back to histology and study the development of the teeth and hair, we find that they are closely allied dermal appendages or tissues. We find many bald-headed men and some bald-headed women, but not until they have passed middle life; it is apparently a senile change in the bulbs of the hair; so, also, as the majority of cases of pyorrhea occur late in life, it may be the result of senile changes affecting the membrane around the roots of the teeth. The teeth drop out as the hair falls out. I do not claim this as the cause, but I believe it is one of the causative factors in this disease,—the result of senile changes.

Dr. FRIEDRICHS. Are there any two members of the dental profession who coincide in their views on this subject?

Dr. MARSHALL. We are all working to the same end. We are trying to find out about it. If I can add a little to the general store of information on the subject I am satisfied.

Dr. FRIEDRICHS. I will cite one case, a gentleman under forty years of age; the upper cuspid was affected. The gum had a bluish tinge; pressing the finger upon the gums would squeeze out a drop of greenish pus; all around the socket was involved. I considered it a case of true pyorrhea. The tooth was lost. But I have never seen five cases with exactly similar conditions.

Dr. WALKER. I will ask Dr. Beach to tell us what pyorrhea alveolaris is. We meet with many cases of calcic pericementitis. He has told us what is not pyorrhea; I would be glad if he would tell us what it is.

Dr. BEACH. It is a destructive inflammation of the pericemental membrane and alveolar process, without calcareous deposits; that is, the calcareous deposit in itself is not pyorrhea.

Dr. WALKER. Can you have true pyorrhea and calcific deposits together?

Dr. BEACH. You can have both.

Dr. WALKER. How can you tell which is which?

Dr. BEACH. If it doesn't get well it is pyorrhea.

Dr. SARRAZIN. It seems it is not much use to discuss the meaning of terms, but it would avoid confusion if we could have terms with a definite meaning. Pyorrhea means "a flow of pus;" alveolaris "from the alveolus." Unless there is a flow of pus we have not pyorrhea alveolaris. As to the deposits, they may be either salivary or serumal; deposits with no flow of pus are easy to handle, but that is not pyorrhea alveolaris.

It would be a good thing if one could draw the line and know just what we are talking about. It is a loss of time for this body to discuss the use of such terms as secretions, excretions, products, formations, etc. There should be a committee on etymology, whose business it should be to decide such points.

Dr. W. T. ARRINGTON. I had an interesting case of pyorrhea some weeks ago. My son was operating for a patient and called me in, and I found a case of pyorrhea of the two lower bicuspids. One was so loose that we concluded to take it out and see the con-

dition of the root. It had five little pendants or fleshy buds upon the root. It had stood up higher in the socket than the other teeth. I introduced a drill in the socket, and then twenty-five per cent. sulfuric acid, cleansed the root thoroughly and replanted it, holding it with ligatures. He came back two weeks later to show me that it was perfectly tight, and apparently in normal condition.

Dr. A. P. JOHNSON, Anderson, S. C. I am not going to say anything about pyorrhea. Some one said something about the ideal filling-material. If we had ideal fillings, an ideal filling-material, God help the poor dentists in coming years! Gold fillings are more satisfactory to patients and dentists than anything we have now, but the ideal filling must be a cement. We will never have the ideal filling till we get away from gold, tin, and amalgam.

Dr. C. N. PEIRCE. I have no claim upon your time, and I thank you for the privilege of continuing the discussion of pyorrhea, which I have listened to with interest. We too often make the mistake of taking the symptoms for the disease. Pus is simply an expression of pyorrhea. By pyorrhea alveolaris we mean "pus in the socket;" it is a conspicuous symptom, and we seek to eliminate that condition. Five years ago I noticed in connection with this condition of pus in the sockets other systemic conditions, and by continued observation I found that in four-fifths of the cases I also had some expressions of a gouty condition of the uric acid diathesis. In four-fifths, if not in nine-tenths of the cases, there was some expression of the uric acid diathesis. I took the accumulations from the roots of the teeth to Professor Congdon, and asked him to analyze them carefully. He reported that they consisted largely of urate of soda, urate of lime, and uric acid crystals. I said to the patients, I would suggest that you begin systemic treatment for the uric acid diathesis; place yourselves on a diet as though for a case of gout. I also prescribed lithia and hot water. You cannot imagine my joy when I found the gums healing up at once with no local treatment. I said, Why did I not see that before? these patients that I have been treating for pyorrhea all have gouty symptoms. Treating the patients for gout cured the pyorrhea. But pyorrhea does not stay cured. You can arrest the progress of the disease, stop the accumulations and the exudation of pus; but let your patient indulge in elaborate dinners and suppers, eat heartily of

meat, and drink wines, and he must suffer for it. The waste products in the system are not eliminated, and pus in the sockets again becomes profuse. According to their habits of life, you must see them at greater or less intervals: some every year or two years, and others every month or every week. In a large number of cases the teeth will eventually be lost. Pyorrhea is an expression of the uric acid diathesis. I have found this to be true of all my patients except two, who were diabetics. There is a condition of pyorrhea belonging to diabetes that is as readily differentiated as whooping cough from measles. It is characterized by a peculiar expression of the gums; an inflammation of the gingival borders, due to tartar on the necks of the teeth. That is not true pyorrhea; it is amenable to local treatment, and they do not lose the teeth. It is an encroachment of tartar upon the soft tissues; but in true pyorrhea the system is loaded with waste products, causing a congestion at the apical space, with an exudation of lime-salts, deposited at the apical end of the tooth from the serum, before there is any destructive action at the gingival border. The serumal exudates work along the root from the apex to the border along the side of the root. When the gingival border is reached, micro-organisms enter and break down the tissues.

Dr. ARRINGTON. Do I understand you to distinctly say that pyorrhea begins at the apex of the root?

Dr. PEIRCE. Emphatically, yes; at the apex, along the same line as in the joints in connective tissue. It is at the end of the root that true pyorrhea begins, without any disturbance at the gingival border; the opening through the gum-tissue is opposite the apical end of the root, the pulp being alive, though the external appearance is the same as that of an abscess from a dead pulp; the discharge is from the region of the apical end of the root, with the pulp intact. It is amenable to treatment. Remove the accumulation through that opening in the tissues. That is why I say that true pyorrhea is an expression of the uric acid diathesis, and must be treated constitutionally, with the addition of local treatment for the external expressions of the disease. I will cite one instance. A lady came to me a month ago. She said, "I have a tooth that is troubling me. I cannot sleep for it. I have consulted three or four dentists, but they all say you are the only one who can give me relief." I examined the tooth and said, "I only want you to take

some medicine and modify your habits of life." "Oh!" she replied, "I go to my physician for that; I wish you to treat my tooth." I replied, "That tooth has been treated to death. I will give you this prescription. To-night you need not expect any relief, but to-morrow night you will go to sleep early and you will sleep well all night, and if you will follow my advice you will continue to sleep well after that." She yielded, and I gave her a little bottle of lithia tablets to be taken three times a day in a tumblerful of water, followed by another tumbler of water; this to stimulate the kidneys and carry off the waste products. I also prescribed exercise, the avoidance of so-called butcher meat, using the white meat of chicken, oysters, fish, etc. She experienced no further pain after the second or third night. Her trouble was due entirely to an accumulation of waste products, expression being had at the root of the tooth because of an originally strained condition, due to the use of the mallet, which had established a predisposition to weakness. Hence the pocket, exudation, etc.

Dr. ARRINGTON. You say that it begins at the apex; that there is a formation of pus there. How can that be without extreme pain? There are many cases where there is no pain, and we often wonder why there is no pain in pyorrhea.

Dr. PEIRCE. The tissues are so softened and yielding that in many cases no pain is recognized by the patient.

Dr. ROLLO KNAPP. In the case you mentioned the pain was so severe that the lady could not sleep at night. Why was that?

Dr. PEIRCE. That was because of the accumulations upon the root. A gentleman came to me the other day wanting a lower molar taken out. I would not take it out. I saw from his feet that he was also suffering from gout. The treatment that I prescribed relieved both his tooth and his toes.

Dr. R. H. JONES. Is your treatment entirely constitutional? Do you not give local treatment also?

Dr. PEIRCE. To me pyorrhea is but the expression of the uric acid diathesis, and I treat it as such.

Dr. L. P. DOTTERER. How do you differentiate between the expression of diabetes and the uric acid diathesis?

Dr. PEIRCE. Pyorrhea may accompany diabetes; diabetes gives a peculiar inverted appearance of the gums, as if the mucous surface of the outside had been torn off and the inside rolled outward.

Dr. ———. Is the lithia water as good as the tablets?

Dr. PEIRCE. I prescribe the tablets because I also want the use of hot water. Water is a great remedy. If you can induce your pyorrhea patients to flush the stomach and alimentary canal, you will have accomplished a great deal. I urge them to drink plenty of water, as a remedial agent. It carries off the waste products. Dr. Reese, of Texas, was the first man who recognized in pyorrhea the result of the uric acid diathesis, in a paper read before the Louisiana State Society.

Dr. I. N. CARR. It does not become me to take issue with a man of Dr. Peirce's experience and ability, but when he says that pyorrhea alveolaris begins at the apex of the root I am not prepared to accept that. The cause of pyorrhea has long been a *casus belli*, but its special indication is a deposition of tartar at the necks of the teeth, destroying the adhesion of the gums, penetrating deeper and deeper, until, if the disease is not arrested, the tooth is lost. The gum-tissue loses its adherence to the tooth, but the disease begins at the gum-margin, not at the apex of the root. The starting cause of the trouble is always tartar at the neck of the tooth. If this is removed and a stimulant applied, such as tincture of myrrh, full strength, rubbed on the gums by the patient very frequently, say twenty times a day, you will have gotten rid of the cause.

Dr. JONES. I will relate a little experience, the result of Dr. Peirce's teachings. Shortly after reading Dr. Peirce's earlier articles attributing the disease to the uric acid diathesis—a systemic affection of the blood—a patient came in who had been under my treatment for four or five years for this trouble, which was continually recurring. Having just read Dr. Peirce's articles, I referred the patient to a physician for examination. He found very pronounced indications of the uric acid diathesis, and the teeth were saved by the addition of constitutional treatment to the local treatment I had been giving. But for that the teeth would long ago have been lost.

Dr. G. F. S. WRIGHT. This subject is still involved in obscurity. The terms used are not clearly understood, and there is more than one kind of calculus deposited causing degeneration of the tissues. That the painless condition does prevail we all know. I have had some experience with this disease, being a victim to it myself, my

own teeth having loosened and being held in by bandages; they are now retained by a bridge. I treat this condition with trichloracetic acid,—using pyrozone in the pockets first,—with very good results.

Dr. W. E. WALKER. At the meeting of the Mississippi Dental Association, in 1895, I reported three cases of abscesses at the roots of teeth having vital pulps, the gingival margins being absolutely intact. Two of the cases then reported were acute attacks, with the teeth very sore and elongated. The third was a chronic abscess, with a history of chronic arthritic diathesis. Examination through the fistulous opening in the last case revealed the presence of serumal calculus near the apex of the root. Mechanical removal of this source of irritation, with the subsequent injection of trichloracetic acid, burning away the diseased tissue, effected a cure. One of the acute cases required the administration of calcium sulfid and painting the gum with aconite, iodin, and chloroform. In the other case the abscess, which was at the root of an upper first molar, healed spontaneously after lancing. The tooth was sound, and the mouth in general in healthy condition, with excellent teeth, though the patient was a woman of immoral habits, a "high-liver," and probably accustomed to the use of ardent spirits. At the date of this case, 1890, an alveolar abscess was usually considered *prima facie* evidence of a dead pulp, and as this case presented all the evidences of an acute dental alveolar abscess, there being no cavity of decay, I decided to drill in through the sulcus, but, finding the dentin normally sensitive, I did not drill through to the pulp-chamber, but placed a small amalgam filling where I had drilled in. I treated the case systemically, but did not succeed in aborting the abscess. After lancing and evacuating the pus it healed spontaneously. The gum-margin was intact and the tooth sound. This patient does not reside in my town, and, a young dentist having located near her, she has since sought his services. From him I have recently learned that the first molar with a small coronal amalgam filling is still in good condition, never having given any further trouble, the pulp to all appearances being vital.

In February last I was called upon to treat two more cases, both being acute dental alveolar abscesses on teeth with vital pulps. In both cases the teeth were considerably elongated, necessitating the wearing of a piece of separating rubber, tied over the teeth on the

opposite side of the mouth to prevent occlusion of the sore teeth. Both required lancing, though the flow of pus was not very great. Both patients were treated systemically,—tartarlithine,—and both were cured in about a week, and have given no trouble since except a slight attack of pericementitis in the case of the lady, which recovered without any other treatment than a return to the tartarlithine tablets. These patients were brother and sister, the lady probably about fifty-three years of age, the gentleman forty-five. There was no discharge at the necks of the teeth.

In the absence of Dr. Holland, Chairman of the Committee on Operative Dentistry, on motion of Dr. I. N. Carr, further discussion was postponed.

The CHAIR. Dr. Thackston asks your attention for a few moments, as he has a presentation to make.

Dr. W. W. H. THACKSTON. Mr. President, ladies, and members of the Southern Dental Association, a sad, yet grateful, duty has devolved upon me. A grand old Virginian, one who has been with you from the very inception of this Southern Dental Association, one who has watched over and aided in all the advances made by our loved profession during the last half-century, now languishes in the chamber of sickness, his course of beneficence and usefulness arrested. I refer to Joseph R. Woodley, of Norfolk, Va. He sends you greetings. Though suffering physically, he bears you in mind with fond remembrance, and has commissioned me to present you with this framed picture,—a group of many of the early members of this Association, some of whom still survive, but many of whom have "passed over the river and now rest under the shade of the trees." He sends you brotherly greetings, and regrets that he is not able to be with you to-day, working shoulder to shoulder.

On motion, the Secretary was instructed to write to Dr. Woodley in the name of the Association, in recognition of his brotherly words and deed, with thanks for the picture presented and sympathy in his illness.

Dr. I. N. CARR. We have with us to-day one of the most honored, cultured, esthetic members of the dental profession. We are proud to have him with us to-day, and I think it but fitting that the Association should give expression to our appreciation of the

presence among us of Dr. W. W. H. Thackston, of Farmville, Va., and for the words of good counsel he has given us.

The CHAIR. All who are in harmony with the sentiment just expressed will signify it by rising.

The sentiment of the Association was expressed by universal rising, hand-clapping, and calls for Dr. Thackston, who, with deepest emotion, in eloquent words, uttered in broken tones, signified his appreciation of this testimonial, which, he said, would ever remain a green spot in his memory.

Dr. PEIRCE, on behalf of the American Dental Association, tendered an invitation to the members of the Southern Dental Association to witness the lantern exhibit of "Developing Tooth-Tissue," by Dr. I. N. Broomell, on Wednesday evening.

On motion, adjourned to meet at 3 P.M.

AFTERNOON SESSION, AUGUST 4.

Called to order pursuant to adjournment; the President in the chair.

The Executive Committee presented the following names of applicants for active membership: Drs. L. A. Smith, Port Gibson, Miss.; A. R. Eaton, Elizabeth, N. J.; J. H. Benton, Newbern, N. C.; L. L. Walker, Norfolk, Va.; R. H. Walker, Norfolk, Va.; S. W. Allen, Tampa, Fla.; who were duly elected, the Secretary casting the vote under suspension of the rules.

The special order of business for this session being the consideration of the report of the Committee on Union of the two Associations, the Chairman, Dr. L. G. NOEL, read the following report:

REPORT OF THE COMMITTEE ON THE UNION OF THE SOUTHERN AND AMERICAN DENTAL ASSOCIATIONS.

Your committee has considered the subject of union of the Southern Dental Association and the American Dental Association, and beg leave to make the following report:

The union of the two Associations seems to them a desirable object to be attained, and they, in conference with the committee from the other Association, have devised a plan, making the following provisions:

First. A new name.

Second. Assuring the membership in the new Association of all the mem-

bers of the Southern Dental Association and the American Dental Association.

Third. Providing for the organization of branches in the several divisions of the country, one of which shall be a continuation of the Southern Dental Association in the South, thus preserving to us in its entirety this organization, which has become so dear to our hearts during all the years of its struggles and success. Its history and autonomy will be thus preserved.

Fourth. The plan contemplates dividing the country into three parts (or divisions), and holding the annual meetings by rotation in the several divisions; thus, in 1898 the meeting will be held in the West, 1899 in the East.

Fifth. The plan we would suggest also provides for the selection of officers in like manner, by rotation from the several divisions of the country.

Your committee would respectfully suggest that an early time be fixed for holding a general conference of the members of the two Associations with a view to perfecting a plan of union.

L. G. NOEL,
E. P. BEADLES,
GEO. EUBANK,
J. ROLLO KNAPP,
V. E. TURNER.

As part of the report, Dr. Noel also read the Constitution, Rules of Order, and Standing Resolutions suggested by the Joint Committee for adoption by the proposed new Association.*

Dr. E. P. BEADLES. Before we proceed to the consideration of this report, I move that we hear the report of the Committee on the President's Address.

Dr. L. G. NOEL. The President's address being chiefly along this same line of thought, your committee has not thought it necessary to present any written report, but desire to express their hearty commendation of, and co-operation with, the suggestions embodied in the President's address.

On motion, the verbal report of the committee was accepted, and the committee discharged.

The CHAIR. The report of the Committee on Union is now before you; what is your pleasure?

* Printed copies of this document had been mailed to members of the two Associations some weeks previous to the meeting. Copies were also distributed among the members present at this session. A number of alterations and amendments to the document as printed and distributed were made by the committee at later meetings, the latest dated noon of the day appointed for the final report.

Dr. J. ROLLO KNAPP. I move you that a resolution be adopted declaring it the sense of this Association that the report of the committee be adopted, and that the union be effected.

Seconded, and opened to discussion.

Dr. KNAPP. I move you that Dr. Fillebrown, Chairman of the Joint Committee, who is now with us, be requested to address us upon the subject, in the way of explanation of details, and in furtherance of this business.

Dr. FILLEBROWN. I am happy to appear before you in this way, in promotion of an object which I have had at heart for years. Three years ago the two dental associations met at this place, the American Association meeting subsequent to the adjournment of the Southern. At that meeting of the American Association a resolution was adopted looking to the union of forces of the dental profession, if it should be found desirable by all concerned. I had the honor to be made chairman of the committee appointed under that resolution. At the next meeting of the Southern Dental Association a similar committee was appointed, the two committees to work in separate and in joint meetings. For two or three years the meetings of the two associations have been mismatching, and the committees could only "report progress." This has perhaps been fortunate, as it has given time for due consideration of the interests involved, and for deliberation upon the best mode of action.

At last we have met together upon common ground,—upon sacred soil, which I hope will be still further consecrated by the consummation of a union which shall result in the furtherance of the best interests of the dental profession.

Any plan, to be effective, must have machinery to work it. Every organized body must have a constitution and rules of order for its government. Therefore, a sub-committee was appointed to formulate such an instrument. This you have just listened to. In it, I believe, there have been embodied all the features most essential and necessary to put the machinery in active operation. I hope this Society will feel inclined to move in that direction.

I will now state briefly some things that that instrument does, and some things that it does not do. It provides a new name for the united dental associations. It limits delegates to duly organ-

ized State Societies, preventing any half-dozen disreputable or irresponsible men from calling themselves a local Society, entitled to send delegates to this great Association. It keeps the list of delegates within the hands of the State Societies, who will send only their most reputable men, being limited to one in every ten of their membership; so that there will be enough good men to go around! The initial membership will include all permanent members of both the Southern and the American Associations who are in good standing at the time of adjournment of the present meetings.

With due respect for tradition and for the preservation of local records, the constitution provides for the establishment of branches. Through one of these, the Southern, the work of your own Association can be carried on just as it always has been done, without any interruption; only you will be acting, in connection with other branches, in affiliation with the National Association. You will elect your own officers, and as your work has been done for the past thirty years we hope it may continue to be done for the next hundred and thirty years to come. The records of both Societies will go into the archives of the new Society. Due courtesy will be shown to all, and to every volume of Transactions of the new Society there will be appended a list of all the ex-Presidents of the two older Societies. And so the work of the good old Southern and of the good old American Association will be carried on to completion by the new National Association, with no blot upon its escutcheon; nothing to hinder its onward march; foremost in the van of progress and scientific advancement.

Dr. GORDON WHITE. I move that a committee be appointed to arrange for—

The CHAIR. The gentleman is out of order; there is a motion before the house.

Dr. BEACH. The motion, as I understand it, is to adopt the report of the committee?

Dr. WRIGHT. I understand that the printed copies of the constitution distributed form a part of the committee's report, but I hope it is open to discussion. I noted during the reading that numerous changes have been made, at variance with the printed copies.

Dr. FILLEBROWN. What changes do you refer to?

Dr. WRIGHT. I noted them scattered all along—

The CHAIR. It would facilitate matters if Dr. Fillebrown would read and explain wherein changes have been made.

Dr. FILLEBROWN. Dr. Noel and I are in fullest sympathy in this thing, and we each know what the other is doing. This report and this proposed constitution is the work of the joint committee. Every point has been carefully studied, that there may be no loopholes in which to pinch anybody. If this is adopted by both Associations, there can be no outvoting on either side.

Dr. ARRINGTON. These printed copies were sent out pretty generally, but, since that, the committee have interlined to some extent and made considerable changes.

Dr. KELLS. As I understand it, the Southern Dental Association appointed a committee to act for them in this matter. That committee has gone over the ground most thoroughly. They have done the best they could. If it suits our committee, it must suit us.

Dr. FILLEBROWN. I believe I still have the floor. It is proper that you should understand this thoroughly; that you should feel that you know exactly what is proposed. I am ready to answer all questions.

Dr. Fillebrown then proceeded to read all the written interlineations constituting the latest amendments adopted by the committee, no comments being offered nor any further questions asked.

Dr. J. Y. CRAWFORD. We are not competent to adopt or amend the constitution. This discussion is upon the report from the committee and the adoption of the resolution offered.

The CHAIR. Will the Secretary read the motion that is before the house?

The Secretary read the resolution offered by Dr. Knapp.

Dr. H. E. BEACH. We are competent to discuss this report and the motion now before the house. The constitution was read by the chairman of the committee as part of his report. Any suggestions offered should be listened to. I move that in the last line of Sec. 1, Art. III, the word "delegate" be substituted for "permanent." If a man is a permanent member, he can also be a delegate from his State Society. Delegate members are the representatives of the profession. Permanent members represent their own pocketbooks; but a man cannot be a delegate except through the wishes

of his Society. It is to the interest of the profession that the officers of the National Association be the direct representatives of the people, not men who are members of the Association simply because they are able and willing to pay their dues, which fact alone constitutes them permanent members. A man in that respect may be in good standing in the National Association, and yet not be a reputable man in his State Society.

Dr. FILLEBROWN. A delegate member comes to the Association, as such, only for one year. He might, under your motion, be elected President or Treasurer, and yet not be returned as delegate from his Society the next year.

Dr. BEACH. Under that ruling we could not have a Speaker in Congress, for he is only a delegate member, holding his office until some one else is elected to fill his place. If a delegate member was elected President of the National Association he would hold that office until his successor was elected.

Dr. B. H. SMITH. I move, as an amendment, that so much of the committee's report as embodies the recommendation that the Southern and the American Associations do unite be agreed to. Let the constitution and by-laws go back to the committee for further revision, and let all who have amendments to suggest go before the committee and present them. I ask unanimous consent to recommend that the union be effected.

The CHAIR. A motion by Dr. Beach, offered as an amendment to the previous motion, is before the house.

Dr. B. H. SMITH. I offer this as a substitute for the amendment.

Dr. CRAWFORD. The Chair has supported my point of order, that we adopt the report of the committee. We are all in a muddle about nothing. Three years ago the American Association appointed a committee, and a few months later the Southern Association appointed a similar committee, the two to work jointly together. Our committee now presents its report through the chairman, Dr. Noel, who then proceeds to read further work done by the joint committee. I hold that this body is not competent to either adopt or reject a body of rules that is to govern others than ourselves; but we are competent to indorse the work which the committee has done thus far.

Dr. ARRINGTON. Dr. Crawford is perfectly correct in his judgment.

Dr. BEACH. In response to the appointment of a certain committee by the American Association, the Southern Association appointed a committee to confer with the American committee and report their work back to this Association; the committee was not authorized to go any farther than that. They have done their work in strict accordance with the instructions given by this Association. The question raised by Dr. Crawford is out of order; that it was sustained by the Chair is not correct. The report of the committee, as read by the chairman, is their work.

Dr. J. S. THOMPSON. If there is no objection, I ask that the report be read for the benefit of those members who came in late.

Dr. T. T. MOORE. Does the committee claim that the constitution and by-laws form a part of their report?

Dr. THOMPSON. A misunderstanding has arisen in this way: Dr. Noel read the report from the committee, put it in his pocket, and then picked up and read a lot of printed matter that did not form part of his report. The Chair ruled that Dr. Crawford's point was well taken, and that we are not competent to act on the constitution and by-laws.

Dr. FILLEBROWN. Your chairman read a report embodying the sense of your committee that it was a desirable thing to perfect this union. If you desire that, why just say so. If you vote that you deem it desirable to accept this report, that the sense of the committee is the sense of the Association, then you can proceed to take further steps to promote the union proposed.

The CHAIR. The Secretary will read the resolution offered by Dr. Knapp (see page 83). All in favor say "aye."

Vote unanimous, accompanied by shouts of approval and a call to order.

Dr. L. M. COWARDIN. I now move the appointment of a committee to wait upon the American Association and agree upon a time to meet and effect this object that we have voted to be desirable.

Dr. BEACH. Has the American Association adopted a similar report?

Dr. FILLEBROWN. The American Association will meet at 7.30 this evening for final action in the matter.

Dr. BEACH. I move, then, that we wait and see whether the American Association wants the union.

Dr. FILLEBROWN. We proposed three years ago, and have been courting you ever since; now let's have the nuptial ceremony.

Dr. COWARDIN. I renew my motion, which was seconded.

Carried.

Dr. GORDON WHITE. I move that the same committee be continued, and take this matter in charge.

Carried.

Dr. B. HOLLY SMITH offered the following resolution:

WHEREAS, Dr. F. C. Wilson, of Savannah, Ga., a member of this Association, did at the risk of his life rescue from drowning this morning Dr. Sarrazin, of New Orleans, who is in attendance upon the meetings of this Association;

Resolved, That Dr. Wilson be requested to step forward and be introduced to the members of the Association, and receive our cordial congratulations and thanks for his heroic and successful display of courage and fortitude.

The resolution was adopted with enthusiasm; and Dr. Wilson was led to the platform, accompanied by Dr. Sarrazin.

Dr. BEACH then introduced Dr. Wilson to the Association as one who, with true heroism, had risked his own life to save that of another.

Dr. WILSON, in brief but well-chosen words, expressed his appreciation of the courtesies extended by the Association, saying that he had but done his duty to a fellow-man.

Dr. J. Y. CRAWFORD. I understand that there is a provision made by the Congress of the United States that when a man risks his life to save a fellow-man, the United States, in order to encourage heroism and valor, those elements of human character to which the world owes its great men, has placed in the hands of the Life-Saving Service crews a fund out of which medals are awarded to those who risk their lives in the cause of humanity. I move you, therefore, that this Association formulate a statement of the facts in this instance, to be forwarded to the President of the United States.

The CHAIR. All in favor of this action on the part of the Association will please signify it by a rising vote.

Unanimously adopted.

On motion, adjourned for clinics on Thursday.

EVENING SESSION, AUGUST 5.

Called to order at 8.30 P.M.

The following paper was read by Dr. T. P. HINMAN:

PHOTO-MICROGRAPHY.

The value of photo-micrography cannot be over-estimated as an illustrative method for books on histology and pathology. The great advantage it possesses over drawings is the simple fact that the mind of the artist cannot be drawn into his pictures, as is so often done, to illustrate some pet theory that the author may have. Drawings are always misleading, as the artist, intentionally or unintentionally, gives his views of the situation instead of a picture of the actual tissue involved. The difficulties in this work, in the majority of cases, I believe, are very much over-estimated, as any one who can intelligently manage the microscope and has but a limited knowledge of photography can make a photo-micrograph. The apparatus can be bought very cheaply. I believe there is one which can be bought for thirty dollars, which can be attached to any microscope-stand with a solid base. Three-quarter and one-fifth objectives, with two-inch and inch and one-half eye-pieces, are all that are essential in the simpler work in microscopic photography. Where colored or stained objects are to be photographed, orthochromatic or color-correct plates are essential; but in ordinary work, in tooth or bone sections, the ordinary photographic plate, of any good standard make, is all that is necessary. The best results I have obtained have been accomplished by using the following developer, which does not fog the plates, and gives the very finest detail. It is made as follows, and is called

CARBUTT'S EIKONOGEN AND HYDROQUINON DEVELOPER.

A.		B.	
Distilled water,	20 ozs.;	Distilled water,	20 ozs.;
Sulfite of soda crystals,	4 ozs.;	Carbonate of potash,	2 ozs.;
Eikonogen,	330 grs.;	Carbonate of soda crystals,	2 ozs.;
Hydroquinon,	160 grs.;	Water to make up to	32 ozs.
Water to make up to	32 ozs.		

C.

10 per cent. solution bromide potash.

To develop, take

A, 1 oz.;
B, ¾ oz.;
Water, 4 ozs.
Add three drops of C.

NOTE.—More of A will increase density; more of B will increase detail and softness. Temperature of developer should not vary much below 65° nor above 75°. The after-treatment is the same as with any other developer.

Let the development continue until the blacks look quite strong, and detail showing in the high lights; wash off developer, then immerse in

CARBUTT'S NEW ACID FIXING AND CLEARING BATH.

Sulfuric acid	1 dr.;
Hyposulfite of soda,	16 ozs.;
Sulfite of soda,	2 ozs.;
Chrome alum,	1 oz.;
Warm water,	64 ozs.;

N. B.—During cold weather use only half the quantity of chrome alum as above.

Dissolve the hyposulfite of soda in forty-eight ounces of water, the sulfite of soda in six ounces of water; mix the sulfuric acid with two ounces of water and pour slowly into the sulfite soda solution, and add to the hyposulfite; then dissolve the chrome alum in eight ounces of water and add to the bulk of solution, and the bath is ready. This fixing-bath will not discolor until after long usage, and both clears up the shadows of the negative and hardens the film at the same time.

Let remain two or three minutes after transparency is cleared of all appearance of silver bromide; then wash in running water for not less than half an hour to free from any trace of hypo solution. Swab the surface with wad of wet cotton, rinse, and place in rack to dry spontaneously; then varnish with plain collodion or Carbutt's "Roxyline" enamel.

Experience has taught me that reduction or intensification of negatives is a failure, and it is best, when such conditions occur, to make a fresh negative. I will now show you some slides that I have made, beginning with No. 1, which is the foot of a common fly magnified one hundred diameters; No. 2 is a photograph of the dentinal fibers radiating from the central pulp-chamber, cross-section of a root of an upper molar, also magnified one hundred diameters. This shows plainly the radiation of the fibers from a central point, as well as their proliferation at a short distance from the border of the pulp-chamber.

Slide No. 3 shows a longitudinal section of dentin of a temporary tooth, and shows distinctly the structural difference in the permanent and temporary teeth. In the first the fibers are smaller and more numerous, while in this one there seems to be a coarser fiber, with an increase of the interprismal substance.

Slide No. 4 gives us a cross-section of true bone magnified one hundred diameters, and is photographed to compare especially

with slide No. 8, and shows the distinctive difference between cementum and true bone. The wide difference between these two structures is here very marked, although most of the books tell us that cementum resembles true bone very strongly. I must say that, microscopically, it does not.

Slide No. 5 is a cross-section of the root of an upper bicuspid, with a portion of the alveolar process and pericemental membrane. It shows distinctly a laminated cementum and also processes from the dentin extending slightly into the cementum.

Slide No. 6 is photographed to show interglobular spaces, and is made to compare with slide No. 7, which is made from a drawing by Heitzmann. By comparison of these two, you can readily see the difference between a photo-micrograph and a drawing from a man's hand.

Slide No. 8 is a cross-section of dentin of a bicuspid between the roots, and shows the beautiful arrangement and anastomosis of the dentinal fibers.

Slide No. 9 is a photograph of the cells of Czermak, or so-called interglobular spaces. It is quite often confounded with the interzonal layers. It also shows the striæ of Retzius in the enamel.

Slide No. 10 is the longitudinal section of the horn of dentin in an upper molar, showing distinctly projections from the dentin into the enamel and a beautifully defined interzonal layer. These projections have been observed by Abbott, Heitzmann, and latterly by Williams, Abbott calling them papillæ extending from the dentin into the enamel.

Slide No. 11 is the same section, only magnified five hundred diameters, and shows the interzonal layer much more perfectly, and also the beaded condition of the dentinal fibers, which, no doubt, has been caused by the drying out of the water in the dead fibers.

Slide No. 12 gives us a photograph of the interzonal layers magnified one thousand diameters, and shows fibers extending from the dentin through the interzonal layer into the enamel.

Slide No. 13 shows a longitudinal section of the tooth of a young dog, giving us dentin, interzonal layer, enamel, and a perfect Nasmyth's membrane.

Slide No. 14 shows us a photograph of calcific matter deposited in the canal of an upper molar tooth, while No. 15 shows us a

small piece of this structure magnified eight hundred diameters, and shows us distinctly what it is.

Slide No. 16 shows us a cross-section of dentinal fibers magnified one thousand diameters, and gives us a peculiar condition, which appears to be the fibers drawn out from the tubes of the dentin.

Slide No. 17 is a cross-section of enamel, lower molar, showing primary decay in a sulcus. The area to where the acid fermentation has penetrated is distinctly seen.

Slide No. 18 shows us a photograph of a longitudinal section of enamel and dentin, with a peculiar projection of dentinal fiber into the enamel just where the interzonal layer ought to be; it also shows the breaking up of the enamel-prisms where Nasmyth's membrane has been worn away, and the ends of the enamel-rods have been exposed.

You will observe that I am not attempting to advance any theory of my own, but am simply giving you the results I have obtained with my camera, and leave them with you for your consideration.

At the end of the reading, Dr. Hinman exhibited an interesting series of photo-micrographs of specimens of dentin prepared by himself.

The following paper was read by Professor C. S. NEISWANGER:

THE PROMINENT CAUSES OF FAILURE IN THE USE OF ELECTRICITY IN DENTISTRY.

Electricity is a natural phenomenon, and the only way to accomplish results, either physical or therapeutical, is to observe closely and try to interpret the language in which nature speaks to us.

It took years of patient study and work for Galvani and Volta to arrive at conclusions the result of which has been a permanent benefit to mankind and made their names famous for all time; and, although we have apparently made much advancement in late years in the application of electricity for the alleviation of many human ills, it yet remains, as it were, a sealed book.

The apathy of dentists in regard to electricity for therapeutic purposes is because of their not being able to measure the results at a glance; they are too apt to expect something phenomenal,

which, in reality, has never been the case with any great therapeutic agent; and why they should expect it from electricity is another unexplained mystery. Brown-Séquard, Koch, and others have furnished splendid examples for the observation of those who would benefit mankind by one great stride in the therapeutic world.

Dentists, as well as the laity, have been accustomed to surround everything pertaining to electricity with a mysteriousness and awe that have almost precluded its rational study from a standpoint of materiality, and it is a noticeable fact that just as soon as it loses its air of mystery and assumes the shape of something that can be handled, controlled, and utilized, great progress is made in its study.

Let us compare electricity with some of the other forces with which we think we are familiar, and see how closely they are related. The latest and most plausible theory regarding electricity is, that it is a mode of motion or other manifestation of a very exceptional form of matter called the ether, which permeates all bodies and pervades all known space, even to the most distant star. If, then, this is electricity, we can see at a glance that we have more of it than anything else we know of, but it is not manifest to us, because it exists in a latent or passive state, and in order to convert it into energy which we can utilize we must destroy its equilibrium, and kinetic energy is generated when it seeks to restore that lost equilibrium, much the same as water, when raised above its level, can be made to do work by the pressure it exerts,—*e.g.*, a mill-race.

A copper wire is strung up along the street on poles, and although the wire is immersed, as it were, in electricity (ether), and is a good conductor of the same, we have no current or flow, because the electric level is not disturbed; but put a force-pump (dynamo) at one end of the line, and we can do work in proportion to the pressure exerted by the dynamo, such as operating motors, electric lighting, etc. Light is only a transverse vibration of this same ether, the wave lengths being infinitesimally shorter than the other forces, the vibrations of red light being about 400,000,000 per second. Heat and sound are apparent to us by the aid of the same medium, the waves being longer.

We know the laws that govern electricity just as well as we know the laws regulating light, heat, sound, and gravitation, and

when we observe that they are elucidated by a mathematical process much of the mystery surrounding them is dissipated, and we look upon them as cold facts capable of being demonstrated; but when we come to consider the fact that all animal and vegetable life is not only due to, but dependent upon, the electrical conditions that surround them, is it not reasonable to suppose that we should be able to restore the equilibrium of the body (health) by supplying electricity from some outside source?

In order to make what is to follow better understood, it will be necessary to consider briefly here the three fundamental principles of electricity, which, although they may be plain to a great many present, will serve as a leader to the subject-matter which is to follow:

First, voltage is pressure or push-power, and is not electricity, but the force which impels it, and is produced by a difference of electric level. Of course, the greater this difference of electric level, the greater the voltage or push-power.

Second, if we are doing our cataphoric work with a battery of cells, this voltage or difference of electric level is caused by the difference of potential between the two elements within the cell. For instance, suppose we immerse a piece of zinc and a piece of iron in an acid or other exciting fluid, the zinc and iron will be attacked by the fluid in nearly the same proportion, and the difference of potential between the two metals will be so small that the resulting voltage or push-power will be very little. If, now, the two substances to be immersed are zinc and silver chlorid, the zinc is acted upon more readily than the silver chlorid, and we consequently have a greater difference of potential or voltage; but suppose the two elements to be zinc and carbon, the zinc is acted upon readily, while the carbon is unaffected by the fluid, and, consequently, these two bodies give us the greatest difference of potential, and a higher voltage or push-power is obtained by their use than by any others.

Third, amperage is electricity or current, and is not to be confounded with voltage, for, although each is a component part of electrical energy, they serve an entirely different purpose. The water in the river represents amperage, the swiftness with which it flows (caused by difference of level) the voltage. We may have a very large river flowing slowly or a small stream running swiftly,

and, just so, we have electrical currents of high amperage and low voltage, or *vice versa.*

The most prominent causes of failure in this class of work I have attributed to three factors,—viz: The battery; the controlling device; the manipulation of the electrodes,—and each will be considered, both from a physical and therapeutic standpoint

The galvanic current, sometimes called the direct or continuous current, is the one which we utilize in dentistry, and is generally produced by chemical decomposition, or is merely the conversion of chemical energy into electric energy, for it must be remembered that, while it is impossible to change matter from one form to another, it is easy to convert one manifestation of force or energy into another; as, for instance, heat-energy may be converted into mechanical energy, a good example being the steam engine.

It is well to also keep in mind the law of conservation of energy, which teaches "that there are no forces in nature to which the law of energy does not apply; the principle that the total energy of the universe is constant, no energy being created or destroyed in any of the processes of nature, every gain or loss in the form of energy corresponding precisely to a loss or gain in some other form or forms." This is the great fundamental principle of modern physics, and is just as applicable to electricity as any other force. The fact is, then, that the electrical energy we utilize for the obtunding of sensitive dentin, or other operations in dentistry, if derived from a battery of cells, is generated entirely by the chemical decomposition that takes place within the cells, and if we would generate electrical energy sufficient for our purpose, we must have a corresponding consumption of the fuel that keeps up the chemical decomposition; and this fuel must, of course, be renewed as required, much the same as the stove which furnishes heat must be supplied with coal as needed. Now, although the dentist would not expect his stove to furnish heat without a renewal of fuel, yet how many there are who must lay their failures in this branch of the work to being seduced by the attractive advertisements of those who would furnish them a battery of a few cells, as large as a man's finger, that is guaranteed to do heavy work for a period covering years. This is not particularly the fault of the dentist, because he has had no special

training in that direction, but it has been very discouraging to the use of electricity in dentistry, because with such apparatus the operator is doomed to failure, as far as absolute results are concerned.

In dentistry we encounter usually a very heavy resistance to the passage of the current, and, as it is the current or amperage *that does the work*, we must have a sufficient voltage or push-power in our battery to overcome these large resistances. It has been reported by competent observers—and my experience has proven the fact to be true—that the average resistance encountered in obtunding sensitive dentin is about twenty-five thousand ohms; how much, then, could the dentist expect to accomplish with a battery of ten, fifteen, or even twenty small cells, which give less than one volt each?

Only a short time ago I was asked to give some advice to a dentist, or, rather, to see why he could not have the same results in cataphoresis as others, and found that his instrument consisted of a battery of small cells, twelve in number, which, upon being tested with a volt-meter, gave a pressure of only eight volts, and yet he wondered why he was not able to get results. Another dentist, whom I lately saw, had a battery of twenty cells, which, upon being tested, gave a pressure of only fourteen volts, which, of course, was not enough to push sufficient current through the resistance of the tooth to do any good whatever, unless the sitting was continued for a great length of time.

So much for the battery; and now I will say a few words upon the means of controlling or regulating the current. A great many devices have appeared upon the market for this purpose, many of them good, but it has been almost universally recognized that the instrument in which the patient is in shunt is the most desirable to use. It should be so constructed that it will control the current in absolutely gradual gradations, and not by steps; in no instance is it advisable to increase the current cell by cell, because this would be very painful in a hypersensitive cavity.

An instrument in which the resistance is composed of German-silver wire is not so good as that composed of graphite or carbon, for this reason: The passage of electricity through any resisting medium always generates heat, and when the German-silver wire is heated the resistance is increased, and, instead of the tooth re-

ceiving an increase of current gradually, the same will drop back, on account of the increased resistance of the wire, and we are constantly going over the same ground twice, as it were, because, after tolerance has been established to a certain amount of current, its flow will drop back again and have to be re-established by a forward movement of the instrument. This is a very prominent cause of failure, which has not, I believe, been heretofore recognized.

With the graphite instrument the heating, which also takes place, decreases its resistance, and, consequently, after the movement of the rheostat to a certain point, the meter will constantly and very slowly indicate the passage of a larger amount of current caused by the decreased resistance of the graphite when heated. Briefly, the wire rheostat causes a fluctuation of the current backward and forward, on account of the increased resistance of the wire by heating, while, for the same reason, with the graphite instrument a steady, but gradual, increase of current is maintained throughout the operation.

The term "volt-selector," which has been used to a considerable extent in connection with cataphoric work, means nothing; a volt-selector is a current-controller, and the more voltage or pressure we have the more current is pushed through the resistance we encounter.

A pressure of twenty volts may push as much as one milliampere of current through the tooth of a certain patient, while the same pressure may push one-half or double as much current through the next patient who takes the chair; this is due to the different resistance of the two patients. If, therefore, it is the amount of current that does the work, a milliamperemeter is the proper thing to have in the circuit, and not a volt-selector. Without the meter it is impossible to tell how much current the patients are receiving, or whether they are receiving any at all, and it is the only safe guide which the dentist can have. It is true that the amount of current for obtunding sensitive dentin in any given case has never been definitely determined, as a large cavity will allow the passage of more current than a small one, because the resistance is less, but in any case it is quite a satisfaction to see the indicator upon the meter move and to know that the patient is getting no more or no less than is indicated upon its face.

In conclusion, and to recapitulate, let your battery have at least a pressure of forty or fifty volts. I do not believe less than this is capable of doing some of the work required in dentistry. Less cells may do some of the work, but with the pressure mentioned above we have at least a reserve force to be used for other cases. The rheostat, or current-controller, should increase and decrease the resistance gradually, and not by steps. It should be of graphite or carbon with the patient in shunt. The electrode should be supported and controlled by the hand. A good meter, with a range of scale to five or more milliamperes, graduated in one-tenth milliampere divisions, should always be in the circuit; and with such apparatus, and by paying due regard to polarity and the electro-sensibility of your patients, I believe you will have no reason to regret the use of this valuable agent in your practice.

Almost all the good results obtained from electrical treatment are obtained by the expenditure of much time and patience on the part of the operator, and if you have not the time to devote to it, you had better not attempt it at all; you will only hurt the remedy, and be doomed to disappointment. Should you, however, not be overburdened with practice, there is no better way of increasing it and having the confidence of a grateful class of patients than by its judicious use as a remedy, or an adjunct to other remedies.

The Secretary read the following resolution, offered by Dr. C. EDMUND KELLS, JR., New Orleans:

Resolved, That the President of our Society appoint a committee to have made a suitable gold medal for presentation to Dr. Wilson, of Savannah, for his heroic act in rescuing Dr. Sarrazin at the risk of his own life.

The resolution was unanimously adopted; Dr. Kells was appointed chairman of the committee.

Dr. B. D. BRABSON, Knoxville, Tenn., read the following paper:

A WORD ON CATAPHORESIS.

My limited knowledge of the wizard, electricity, makes it essential for me to occupy a position that is not altogether impregnable.

I am unable to account for the action of medicine administered cataphorically, nor have I been able to establish any absolute confidence in the use and effects of cataphoresis. Since September,

1896, I have been using Van Woert's instrument, and I will give instances of its use. The only success I have had was in allaying sensitive dentin and in bleaching discolored teeth. For destroying pulps and reducing inflammation, etc., my failures were complete.

The first use of the instrument was for a frail married woman, about thirty years of age. She had been ill for months, and was scarcely able to reach my office. Her teeth were exquisitely sensitive. After adjusting rubber-dam, and applying a saturated solution of cocain with fifteen cells and twenty volts, I waited ten minutes for results. I was enabled to excavate without pain. My patient was in an ecstasy of delight. In a day or so she sent her sister to me, a young lady of perhaps twenty-four years. Her teeth were very sensitive. A treatment similar to the first proved equally successful.

I was pleased with results for some time. I found in a few weeks my success varied. I began to grow impatient as to the results, which were such as to place me in a position where I felt like apologizing every time I used the instrument. For several weeks I stopped its use.

About January I received a letter from Dr. Kells, asking me to get a preparation called Electrocaine, made by Dr. Brown, of New York, which I did; and have used it with better success than the cocain. Still, I think improvement can be made on the present mode and preparation.

The uncertainty of results is an unpardonable condition; I used such precaution as was necessary, and cannot tell why the results were so varied. I have seen no harmful effects from the use of the medicine and instrument; and, taking all things into consideration, I am persuaded we are on the right road to the discovery of a method of performing the most delicate operations in dentistry without pain.

My judgment is that it is altogether feasible, and I have so much confidence in the students of dentistry that I expectantly await the dawn of a better day, when we shall be considered harbingers of a beatitude hitherto unknown; when a dentist shall be looked upon as a mild, gentle person, bringing peace and comfort always to the sufferer, and never be held up as a cruel, hard-hearted sort of man.

The present status of dentistry has been attained by a careful

study of methods intended to produce the greatest good with the least pain. How well the profession has succeeded the advanced conditions of the art we practice speak with a clear voice. Some of the dreams of generations have been realized, and the end is not yet. Many hidden methods are awaiting development, and there are still opportunities for the exercise of the best work of man's ingenuity. Dentistry furnishes a study that will consume any man's time. No profession is making more rapid strides, and a just tribunal of public sentiment recognizes the importance of our work, and accedes to our demands for a front position in the onward march of progress.

The papers read were then declared open for discussion.

Dr. KELLS. I wish to ask Professor Neiswanger one question. When you drop two pieces of different metals in a fluid, so that they are submerged, do I understand you that there is a current passing between them, with a corresponding waste of material?

Dr. NEISWANGER. Yes. For instance, if you put in your mouth two pieces of metal, the moisture of the mouth conveys the current, as you perceive by the peculiar metallic taste.

Dr. KELLS. Is there a corresponding waste of material in that case?

Dr. NEISWANGER. Yes; in every case.

Dr. KELLS. Then why is it that we have cases where different metals have been in a tooth for forty or fifty years, and yet there has been no apparent loss of material? Is the loss so very gradual that it is imperceptible to us?

Dr. NEISWANGER. It is probably because the metals are not submerged. You can't put the powders of a Seidlitz powder in a glass and add water without having decomposition. That produces electricity, and means could be devised to convey it out of the glass and demonstrate it. Chemical energy develops the electric current through waste of material.

Dr. KELLS. Suppose they are not in contact; would the difference in potential persist?

Dr. NEISWANGER. Yes; until they were connected, when the equality would be restored. It is like a series of suspended balls. The energy of the first one falling might not reach the fifth, but

if separated with sufficient force the last one would be reached, the energy or force passing through the intermediate balls.

Dr. KELLS. We have many instances where two metals in a tooth, as amalgam and gold, are in contact and kept constantly moist, and yet there is no evidence of waste.

Dr. NEISWANGER. If they are kept constantly bathed in moisture, there must, nevertheless, be a current. It may be that there is so much internal moisture that the current is used up, and none left to decompose the metals. If you put two coins in your mouth, as silver and copper, and connect them, you immediately detect the current, the saliva being the exciting medium.

Dr. JOHN S. MARSHALL. Dr. S. B. Palmer, of New York, established the fact, years ago, that there is a current between the two metals in a tooth until the surface is oxidized. It is for that reason that the surface of an amalgam filling becomes black; it is oxidized.

Dr. J. S. THOMPSON. If medicaments are not carried into the dentin by the electric current, how is it that the patient is sometimes affected by cocain applied cataphorically?

Dr. NEISWANGER. The effect is probably due to cocain coming in contact with the gums; it may be taken into the system in that way. But the current cannot carry in the solution itself. The solution is decomposed; the hydrochloric acid remains at the positive pole, and possibly enough cocain may be carried in, in seeking the negative pole, to affect the patient constitutionally. To utilize iodin for breaking up or developing abscess, or in pyorrhea, you would never be able to carry iodin in by the positive pole; but if you apply potassium iodid with the negative pole, the iodin would act as an acid and seek the positive pole, the potassium remaining at the negative. If you apply potassium iodid on the positive pole, the iodin would remain and potassium, the metallic base, be carried to the negative pole, some being left in the tissues. Oxychlorid of copper, a valuable agent, could be used in that way, using a copper needle for the positive pole. The copper would be decomposed, oxygen attacking the copper, which would go to the other pole, driven in by cataphoric action. Used in that way, it would almost equal bichlorid of mercury, while it is non-toxic. Solutions or compounds are always decomposed, the base remaining at the negative. A small current, however,

will not decompose cocain hydrochlorate. With wet cotton and the alternating current you can produce local anesthesia, tetanizing the nerve through fatigue of the tissue, producing an acid condition which is the beginning of death of that part, which is what anesthesia is. There is no necessity for using any medicament; polarization will do it, and it is not so dangerous as you might suppose if you have control of the current.

Dr. JOHN S. MARSHALL. I have had considerable experience in that line in the reduction of inflammations and congestion. One morning in 1884, I woke up with a jumping toothache in the left upper second bicuspid, the first real toothache of my life. It was a Sunday morning. I ran down-town, trying to find somebody in his office on Sunday. It had occurred to me, in my studies in electro-therapeutics, that it might be possible, through the positive pole, to deplete congested parts, and that the negative pole would cause congestion. I accordingly went to the office of Dr. ——— and asked him if he thought it would be possible to relieve pain by means of electricity; at all events, I wanted to try it. At the end of twenty minutes the pain had entirely ceased. I then hunted up a dentist, who removed a gutta-percha filling. After a second treatment with the electric current the tooth was refilled with gutta-percha, and I had no further trouble with that tooth. In 1887, Dr. Ludwig filled it with gold. The tooth is still sensitive to thermal changes. That experience enlightened me as to the value of the galvanic current for the relief of pain, and I now use it constantly. I have an appliance made by the McIntosh Company, of Chicago, who had an electrical exhibit at the World's Fair, in 1893. Five times the value would not buy it if I could not get another. I am confident that it will not only relieve pain, but will save the pulp, unless it has been exposed to septic infection. The continuous galvanic current will reduce congestion, relieve pain, and save the pulp. In my first experience the operator simply put his finger on my tooth, he holding one pole, while I held the other. The McIntosh Company now make a variety of electrodes. No medicament is required in the use of the galvanic current; the current from the positive pole contracts the muscles of the blood-vessels, producing anemia of the part. I did not know anything about the changes from acid to alkaline conditions at that time. I thought relief was due to the

muscular contraction in the blood-vessels. Then we knew nothing about voltage. I now use about six volts, with from four to five amperes, placing a sponge moistened with salt and water in the cups of the electrodes.

Dr. PRICE. It is just such a talk as this that we want, telling us *why*. My time is so valuable that if I can apply the electrodes mechanically, and meanwhile employ my time otherwise, I feel that I have accomplished something valuable. For this purpose I roll up fine wire and pack it in the cavity with cotton. I can detect a current as fine as the one-hundredth of a milliampere. Every time the heart beats I see it by the movement of the electrode. With an exposed pulp I can see the pulsations. I use annealed wire as fine as thread, and packed in the cavity. In Columbia, last summer, Professor Neiswanger took the position he has taken here, and proved it by demonstrations. Electricity is governed by certain laws that are well known, but there are various theories as to the action of the electric current in cataphoresis. The first is that it is due to polarization of tissue, and depends entirely upon the current, regardless of medicaments,—an inhibitory rather than a sedative effect. Another theory is that of osmosis; but when all the various theories have been analyzed we are forced to the conclusion that it is electrolysis, pure and simple, with perhaps some osmosis.

On motion, subject passed.

On motion of Dr. KELLS, a vote of thanks was tendered Professor Neiswanger for his paper.

On motion, adjourned to 10 A.M. Friday.

MORNING SESSION, AUGUST 6.

Called to order at 10.30 A.M.; the President in the chair.

Dr. V. E. TURNER. All bills presented have been audited. Will the Association order them paid?

Dr. DOTTERER. I move that the report of the Auditing Committee be received and the bills, as audited, allowed paid. Carried.

The Executive Committee reported the following application for active membership: Dr. J. H. White, Elizabeth City, N. C.

On motion, the rules were suspended, and the Secretary cast the ballot electing Dr. White.

The Secretary read the following communication:

MACON, GA., July 17, 1897.

DR. S. W. FOSTER, *Sec. Southern Dental Association.*

Dear Sir,—Please tender my resignation to the Southern Dental Association, which convenes at Old Point Comfort August the 3d, and oblige,

Yours, very truly,

J. M. MASON, D.D.S.

On motion, the resignation of Dr. Mason was accepted.

The minutes of the preceding session were read by the Secretary, and, on motion, adopted as read.

Dr. L. G. NOEL. I wish to state, for the benefit of those who are not members of the Association, that joining the Southern Association at this session means permanent membership in the National Dental Association, which has been organized.

Committee reports called for. Hygiene, no report; passed. Pathology and Therapeutics, no report; passed. Histology and Microscopy, Dr. T. P. Hinman, chairman; no report other than the papers read at the session last night. Dental Chemistry, no report; passed. Literature and Voluntary Essays; Dr. W. W. H. THACKSTON read the following paper:

THE MISAPPLICATION OF GOLD CROWN- AND BRIDGE-WORK.

The prosthetic department of dentistry, within the past decade, has made notable and most startling progress and advancement. The materials and the methods for the replacement of lost teeth, for the correction of abnormalities and irregularities in the dental arch, and for the successful treatment of lesions of the hard and soft palates have been most creditable to our present professional era.

With the advent of rubber, rose pearl, celluloid, and the base metals as the foundation for our so-called mechanical work, prosthetic dentistry went into partial eclipse and abandonment with, or by a large percentage of, our leading men and most skilled and reputable operators and practitioners. Society became crazed and demoralized by the proclamation of "cheap dentistry," and swarms of "rubber dentists" sprang up, thick as mushrooms in a

hot-bed, and so rapid was the descent and so profound the depths fathomed by these dental fakirs that among the better class of skilled and honorable men in our profession it became a question of grave discussion and debate as to the expediency of sloughing off our prosthetic department altogether and remitting it to the men who almost entirely monopolized the patronage of the people, who were infatuated with the idea of "shoddy dentistry."

Some ten or more years since, an earnest appeal was made to the prominent and leading members of our profession to come to the rescue of our prosthetic department from the charlatans and impostors that infested every city, town, nook, and corner of our country, to the damage of society and the prostitution and dishonor of a necessary and benevolent calling.

That appeal was heeded and nobly responded to by many of our representative men. The precious metals, gold and platinum, once more appeared in our laboratories. We went back to Moses and the prophets; to the materials and the workmanship that had blessed humanity and added lustre to the names and memories of the "fathers." We also went forward with advanced, extended, and improved applications of methods and materials that had previously given character and illustration to the grandest achievements in the history of dental prosthesis.

Gold and platinum plates of exquisite workmanship and finish, the unequaled continuous-gum work for partial and entire dentures, were once more produced. Gold and platinum appliances for the correction of irregularities and for the relief of cleft palates and other lesions of the hard and soft tissues of the mouth were once more worked out, to the joy of patients and to the credit and honor of practitioners.

Along with the advances we have noted came the comparatively new operation of crowning with gold worn, decayed, and broken-down stumps and crowns of natural teeth, and the substitution of bridges for the wide and more cumbrous plates formerly employed.

The specialty known as crown- and bridge-work, when applied with skill and judgment, is by far the most brilliant and beneficial advance that has been made in modern dental prosthesis. With correctly made and judiciously applied crowns and bridges, and with an imperishable plastic tooth filling—stable, non-shrinkable, inexpansive, and of shades and colors matching the natural organ

—the very perfection and ideal of prosthetic and operative dentistry would be realized.

But, alas! we have not yet discovered the unchangeable plastic, and the misapplication of crowns and bridges—their faulty construction and equally faulty adjustment—disappoints and disgusts our patients and creates distrust of our resources to meet their wants and fulfill our promises of utility and comfort. Not only is the foregoing statement true of much of the bridge-work which has come under observation, but it is equally true that we now and then witness examples of gross and unpardonable violation of all hygienic and esthetic rules and requirements by the placing of gold crowns upon the diseased stumps of cuspids and incisors.

Unequaled and invaluable as is the prince of metals in both operative and prosthetic dentistry, it should never be made conspicuous in a human mouth, except under unavoidable circumstances and conditions.

It is always a sad misfortune, when we are called upon to save a valuable tooth, that we are compelled to place gold fillings where they expose and betray their presence with every word and smile.

Gold crowns should only be applied to roots and stumps of teeth out of view,—almost exclusively to the molars,—and neither crowns nor bridges should ever be applied or attached to other than perfectly sound and healthy stumps or roots. A bridge or crown fastened to teeth or roots which are in a diseased condition will always result in dissatisfaction and failure, and entail discredit and reproach upon the operator, as well as upon two of the most important and valuable advances known to prosthetic dentistry.

In brief, the safe and sure maxims for our prosthetic brotherhood are:

First. A sound and healthy condition of the hard and soft tissues of the mouth, including the gums, membranes, teeth, and roots of teeth.

Second. Porcelain crowns and facings for all anterior and exposed teeth.

Third. Perfect adaptation and artistic finish for each and every piece designed for insertion in the mouths of men and women.

On motion of Dr. B. H. Catching, a vote of thanks was tendered "the grand old man" for this contribution.

Dr. E. P. BEADLES. I move that this paper be received and go to the Publication Committee. Carried.

Dr. T. P. HINMAN, acting chairman of the Clinic Committee, read the following:

REPORT OF COMMITTEE ON CLINICS.

Dr. Luckie, chairman of this committee, telegraphed, at the last moment, that he was too ill to leave home; and there being no other member of the committee yet upon the ground, the Executive Committee requested Drs. T. P. Hinman and C. Edmund Kells, Jr., to take charge of and prepare for the clinics.

This we cheerfully agreed to do, and submit the following as our report of the clinics arranged for and held:

No telegrams or letters were received from Drs. E. Parmly Brown, George H. Winkler, B. F. Arrington, L. P. Haskell, W. G. Browne. We can therefore assign no reason for their not fulfilling their part upon the program.

By some oversight Dr. Bronson, of St. Louis, who was present, was not located until after the clinics were over, and, as there was much of interest going on, Drs. Gordon White and Kells, Jr., who were duly occupied with their respective duties of the day, did not give their clinic. Dr. J. A. Dale was too indisposed to give a lengthy clinic. The following are the clinics given:

Dr. R. OTTOLENGUI, New York, filled a central incisor, demonstrating the use of Williams's platina-gold foil in restoring incisive edges of badly abraded teeth. He used the platina-gold in narrow strips, packing with Bonwill engine-mallet. To avoid burning the outer layer of gold, thus exposing the platinum, this material must be carefully annealed, and at this clinic the doctor made use of the Custer gold annealer, which admirably served the purpose. In conjunction with the platina-gold, the clinician used occasional strips of Williams's rolled gold, No. 30, thus assuring a cohesive surface throughout the filling.

Dr. C. L. ALEXANDER, Charlotte, N. C., exhibited models showing the mechanism of a new method of crowning a tooth. The porcelain tooth, as well as the root of the natural tooth, was provided with a cap and post. The parts, being placed in position in the mouth, are held together with wax until removed, and soldered or united. By making the post in sections in this way

he was able to set the porcelain crown at any angle upon the tooth to be crowned.

Dr. L. E. CUSTER, Dayton, Ohio, demonstrated his improved electric oven by fusing a full upper case. The oven has been enlarged so as to take in the largest cases in practice, and of different forms. The cause of the burn-out, which occurred in the first ovens made, has been found and corrected, so that now a burn-out cannot occur in the legitimate use of the oven. The wires are not imbedded in the fire-clay, so that the heat is immediately realized and none is wasted in conduction.

Dr. ROBERT EUGENE PAYNE, New York, N. Y., gave a clinic on implantation. Man thirty; lost upper right central incisor eight years before. Sterilized gum and mouth with borolyptol; followed this with alcohol at point of operation. Cocainized gum on both sides of the process with two per cent. solution, using ten drops close to periosteum with pressure, and slowly; gave tablespoonful whisky. Waited three minutes; cut double flap,—outside flap long. With small Ottolengui bone-drill cut socket full depth; then enlarged it to accommodate small cone-shaped root. Great care used to preserve outer thin plate, that entire root be surrounded or covered with bone. Used small, slim, mature root, extracted from man fifty or sixty years of age; dense, hard, sound, with perfect pericemental membrane. Cut off the worn natural crown; fitted a Davis crown to match adjoining central incisor; shortened root in this manner without cutting off end of root. Filled root with paraffin and salol; cemented crown; sterilized root in one five-thousandth bichlorid over night. Washed out socket with borolyptol after cutting, and just before inserting tooth for last time placed a few crystals resorcin on root to make sure no infection could develop in the new socket, until nature should have time to protect the wound. Ligated with waxed oo silk twist, by passing it around three teeth, using two cross-threads between the teeth and on either side of the implanted tooth; surgeon's knot, and a square knot above this. Instruments sterilized with aquæ ammonia, tooth with one three-thousandth bichlorid, hands with alcohol.

Dr. C. M. CARR, Salt Lake City, Utah, exhibited his method of "anchored adjustable dentures," showing full upper and partial lower practical cases. The full upper denture was "anchored" to

cuspid root on the left and third molar on the right. This denture was attached in such a way as to make it impossible to place an excessive pressure on either of the anchorage piers. At the same time it was easily removed and adjusted by the patient. Lower partial denture, comprising first molar on left and second bicuspid, first and second molars on right, was "anchored" to second molar on left and second bicuspid on the right. It was "anchored" in position, as far as any liability of being thrown out of position is concerned, yet adjustable and removable by the patient at will.

Dr. W. E. WALKER, Pass Christian, Miss., demonstrated the use of his "facial clinometer" in obtaining the condylo-occlusal angle of the subject for whom a denture is to be constructed; Walker's physiological articulator being set at the same angle, in order to secure a perfect balancing articulation. The demonstration was made on Dr. L. A. Smith, of Port Gibson, Miss.

Dr. Walker's promised comparative demonstration in the articulation of casts of natural teeth with the Bonwill and the Walker articulators could not be given, as no Bonwill articulator could be obtained.

Dr. W. J. BRADY, Kansas City, Mo., gave a clinic on fitting regulating appliances to models. In this clinic Angle's system of treatment was followed. The object of the clinic was to show what economy of time and labor there is in using ready-made appliances over the method of constructing appliances for each individual case. The clinic abundantly proved the point, Dr. Brady fitting twelve cases with appliances during the forenoon. To avoid the insinuation that might arise that the appliances shown might not do the work, Dr. Brady selected cases from his practice where he had corrected the irregularity by the very appliances shown, and in nearly all the cases exhibited models showing the correction accomplished. In every case the appliance shown was the acme of simplicity, combined with great efficiency, which are the main characteristics of the Angle system, and which undoubtedly place it *first* in the systems for the regulation of the teeth.

Dr. F. F. FLETCHER, St. Louis, Mo., demonstrated the advantages of a narrow saddle in bridge-work, proving it to be the only hygienic saddle. He also showed cases that have been in the

mouth of the patient for six and seven years. Tissue under and around saddle perfectly normal. Also demonstrated that the piers in bridge-work should be parallel, and insisted that in most cases where they are not, regulating should be resorted to. When you have corrected the malposed pier and restored normal occlusion, thus making piers parallel, construct bridge and set. The bridge acts as a retaining appliance, holding former malposed tooth in original and proper position. Charts of cases were used to demonstrate.

Dr. V. H. JACKSON, New York, N. Y., demonstrated his method of making and adjusting a crib anchorage in regulating.

Dr. V. DE TREY demonstrated the filling of a left upper second molar masticating surface cavity; no undercuts or retaining points, the grooves left by the cross-cut burs being sufficient to retain filling. Used one-sixteenth of an ounce of Dr. E. de Trey's "Solila gold" and special instruments, with hand pressure; finishing margins with hand mallet and polished pluggers.

Dr. FRANK HOLLAND, Atlanta, Ga., filled two large compound cavities in the right upper first molar and second bicuspid, cavities extending well above the gum-line in each tooth. Bonwill electric mallet used.

Dr. FRANK HOLLAND, Atlanta, Ga., filled two large compound molar with Morgan & Hastings' Crystal Mat gold.

Dr. D. J. MCMILLEN, Kansas City, Mo., gave a clinic on the insertion of a gold filling in a large crown cavity of an upper right first molar, using White's "Globe Foil," absolutely non-cohesive or dead soft. No rubber-dam used; six sheets of gold; filling was inserted and stowed down in about twenty minutes. The gold was used in cylinder form, and as much as one sheet each in three cylinders; other cylinders were of different sizes. Wedging from the center all the time; only a little lateral condensing, from the fact that the walls were weak; depended on judicious wedging and riveting down end of cylinders after they were inserted. This method is fully described, with liberal illustration, in August and previous numbers of *Items of Interest.*

On motion, the report was accepted.

Dr. GORDON WHITE, chairman of the Committee on Appliances and Improvements, read the following report:

Mr. President and gentlemen, we had hoped to present from our committee a number of papers, but regret to state that we have only one, a short paper by Dr. J. L. WOLF, of Washington, D. C.; and, complying with his request, will now read.

LIBBY HAND-PRESSURE GOLD PLUGGERS, ROYCE MALLET POINTS, AND RUSSELL ELECTRO-MAGNETIC MALLET.

Having had, since Dr. Libby's article on his instruments, in June number (1895) *International Dental Journal,* considerable experience with his peculiar design of hand-pressure gold-pluggers, supplementing them with the Royce mallet-points for the further conservation of physical strength, as well as for the condensing property of the latter, and having had, after more than eighteen months' duration of time, opportunities for observing the most gratifying results from their use, especially in those cases which, by virtue of unusual difficulty attending the application of the filling, furnished excellent tests as to the efficiency and fidelity of the instruments, it seemed of sufficient importance and this a fitting occasion to present the statement, in form of a report, for the attention of those members who may not be entirely satisfied with the results obtained by existing and generally accepted methods of inserting gold fillings, and who, if they have not already taken the initiative, may be induced to make those instruments and method of operating the subject of careful investigation.

Concerning the advantage, in detail, of the characteristic points, shanks, and handles of the Libby instruments, the article mentioned is full and explicit, so that repetition in that direction is unnecessary here.

But, as regards the labor attending the introduction of gold fillings, the feeling of confidence as to results, which a firm grasp upon large but convenient size and congenial handles of wood instills during the manipulative process, contributes greatly to avert much of the sensation of exhaustion often experienced by the dental practitioner from this line of operations during the more active seasons of practice.

The Royce mallet-points are, without doubt, unequaled, certainly are not excelled, for safety and effectiveness where malleting

is required; and when supplied with appropriate handles become very efficient hand-pluggers.

But it is as mallet-points, supplementing the Libby hand-pluggers, as before explained, that they are of incalculable value, for the twofold purpose of conservation of physical strength and condensation of material; and with the Russell electro-magnetic mallet as the propulsive power they are capable of a very wide range of application, including most, if not all, of the advantages of the foot-shaped point.

The Russell electro-magnetic mallet, supplied with a dry cell battery or attached to the ordinary street circuit, is among the latest inventions of the kind, and of unsurpassed ingenuity, perhaps, in that the instrument combines within itself a number of unique and essential features, among which are more convenient size for handling, lightness of weight, adaptability for any kind of point, versatile action of switchboard; all of which denote it to be much in advance along the line of improvements for dental purposes.

CHAS. F. MEHLIG, D.D.S., of New York City, introduced Mehlig's Saliva Controller, for which he claimed the following advantages:

First. This instrument when put in the mouth will keep the tongue and cheek from the teeth, and forms a free space along them. In this space absorbents are placed, such as cotton rolls, wood pulp, spunk, or bibulous paper; and these, when desired, can be replaced. A flat pad may be used over Stenson's duct, which is held in place by the outer edge of the instrument and upper teeth.

Second. Once the instrument is placed in the mouth the operator has both hands free, which is a great advantage.

Third. When using this instrument for filling lower teeth, with either cement, amalgam, or gold, the rubber-dam is dispensed with.

Fourth. It also can be used in opening and filling the nerve-canals in lower teeth without the saliva entering them; and medicine can be introduced with perfect safety. Single crowns and small pieces of bridge-work can be cemented on the teeth while they are kept perfectly dry. It is also useful in the application of cataphoresis.

Fifth. The patient can close the mouth to relieve the strain of the muscles, and the teeth still be kept dry, till the operator is ready to proceed with his work.

Last, but not least, it is very durable, and will last a lifetime.

Dr. PARRAMORE, of Hampton, Va., presented a set of scalers, devised especially for the surgical treatment of pyorrhea. These scalers differ from the ordinary scaler in the shape of the blade, which is crescent; which shape causes it to fit closely the root, and prevents slipping and wounding the tissues unnecessarily. They are intended to be made in pairs—one to cut with a push toward the end of the root, the other with a pull toward the crown.

He also presented a sterilizer devised by himself. It depends for its action upon formaldehyde gas, generated by the combustive decomposition of wood alcohol. This is a modification of the Moffitt generator, supplied by Eli Lilly & Co., of Indianapolis, Ind.

Dr. W. E. WALKER, of Pass Christian, Miss., presented his Facial Clinometer, the most important use of which is the obtaining of the condylo-occlusal angle, which it is important to have in order to set Walker's physiological articulator at the same angle as exists in the subject for which a denture is to be constructed. It is necessary that the articulator should be set at the correct angle, for otherwise the balancing articulation cannot be obtained. The demonstration was made on Dr. L. A. Smith, of Port Gibson, Miss.

There was presented by Mr. W. J. POHLMAN, Woodbrook P. O., Baltimore, Md., a simple means of applying a 24k. gold surface to German silver regulating appliances, dental instruments, and metals generally, without the use of a battery. It is instantaneous in action. With this your chairman has had some experience, and suggests that it is worth a trial by every one for the purposes indicated above.

Dr. L. G. NOEL, of Nashville, Tenn., introduced sterilized thorns of the prickly pear, which grow in various sizes, for the filling of root-canals, carrying with it chloro-percha. This little thorn possesses a springy flexibility most desirable.

Dr. R. E. PAYNE, of New York, introduced a method for treating the antrum. A slender nozzle capable of being bent, three feet of rubber tubing, and a funnel or cup. The cup is filled below the level of the face, then raised gently, flushing the antrum and

avoiding the force usually accompanying the use of a syringe. Lowering the tube will syphon out the solution.

Dr. H. S. LOWRY, Kansas City, Mo., presented a crown- and bridge-work system. The system consists of a series of dies for contouring bands and forming occlusal caps for gold crowns and bridge-work; a neat metallic stamper into which each of the dies fits; a series of "trial caps," each provided with a stem for convenience in handling, and a number on its under or flat surface to correspond with the die in which it was made; and a unique soldering plier, for holding the cap on the band during the process of soldering. It is constructed in such a way as to prevent tilting of the cap, and also to allow the heat to be distributed at all points of the crown alike, thus preventing unequal flowing of the solder.

There was shown a universal matrix-holder of Dr. J. M. STRAUT, of Portland, Me.,—a most convenient little instrument.

Dr. B. HOLLY SMITH, of Baltimore, presented an ingenious gold annealer, consisting of a very simply constructed frame for holding the mica.

Your chairman begs to call your attention to a dental poultice, composed of hops, slippery elm, gum tragacanth, cayenne pepper, etc., put up in thin muslin bags. They are made by Dr. Thomas Dotterer, of Charleston, S. C., who sent us a sample some time ago; and we have found them very efficient in reducing all inflammations around the teeth, and also serviceable in bringing an abscessing tooth to the point of suppuration. In cases of great pain a few drops of laudanum may be added to the bag. The doctor does not claim any originality in the bag itself, but, believing the profession needs such a thing, puts it on the market for their convenience. Samples will be sent to any one interested.

Your chairman of this committee presented a set of four very thin burnishers, of different forms, which make a most convenient and useful set, which will be satisfactorily demonstrated upon using them.

We also presented a pair of pliers for the application of medicaments to gums or cavities. They are "cross-action" pliers, formed from the two pliers Nos. 13 and 17, White's catalogue. These pliers are to hold the medicated cotton while the gum or cavity is being dried for the application. This little instrument will go far toward breaking the habit of many of us of putting the ordinary

foil pliers between our teeth to hold the medicated cotton while the preparation for its application is being made.

Respectfully submitted,

GORDON WHITE, *Chairman.*

On motion, the report was accepted.

Dr. J. S. THOMPSON moved a special vote of thanks to Dr. White for the painstaking care evidenced in the report. Carried.

Dr. KELLS. I have the honor of representing the first committee on cataphoresis ever appointed by this Association. In order to make the report as complete and perfect as possible a special reporter was detailed for each clinic, blanks being furnished in order that the reports might be uniform. The list is so long that the reading in detail of each case would make this report too tedious. We therefore beg to present the following summary of the clinics in cataphoresis.

It is greatly to be regretted that Dr. A. L. Sontag, of Cleburne, Texas, who came prepared to give us a most valuable and interesting exhibit of lantern slides, illustrating the effects of cataphoric medication upon tooth-structure, was unable to do so. An essential portion of the lantern having been left out in packing, it became impossible for him to give the exhibit.

REPORT OF COMMITTEE ON CATAPHORESIS.

Your Committee on Cataphoresis would submit the following report:

Upon the appointment of this committee it was determined to use every effort to make as complete a practical exposition of the subject as was possible, and the result of our efforts was laid before you to-day.

In order to obtain the best information possible, from the operations performed by the clinicians, blank forms of reports were prepared, and a special reporter was detailed to follow each operator and fill out the blank as the work proceeded.

In this way comparisons of the different methods used could be intelligently obtained. These reports are herewith submitted:

REPORT OF CLINIC NO. I.

Given by Dr. T. M. Allen, Birmingham, Ala.
Name and address of patient, S. M. Smith, Fortress Monroe.
Labial Cavity, right superior cuspid.
Operation, excavating and filling with cement.
Apparatus used, Van Woert.
Agent used, 15 per cent. cocain in electrozone.
Current turned on at 3.18 P.M. Tooth very sensitive.

Current turned off at 3.28.
Current on ten minutes.
Result obtained, perfect anesthesia.

B. D. BRABSON, *Reporter.*

REPORT OF CLINIC NO. 2.

Given by Dr. C. L. Alexander, Charlotte, N. C.
Name and address of patient, Dr. W. W. Freeman, Norfolk, Va.
Cavity in anterior approximal surface of superior third molar.
Operation, excavating and filling with cement.
Apparatus used, S. S. White Cataphoric Outfit.

Experiment 1.

Agent used, 25 per cent. cocain solution placed in cavity upon cotton. Metal electrode in left hand.

Current turned on at 5.30 P.M. At the expiration of two minutes seven volts had been reached, showing current of 0.4 milliampere. Current turned off; patient reported sensation slightly reduced.

Experiment 2.

Agent used, 25 per cent. cocain solution placed in the same cavity upon fiber-formed tin, and a perforated aluminum electrode placed in left hand. The current was turned on gradually, until seven volts were reached, which showed a current of 0.65 milliampere. At the expiration of 5½ minutes Dr. Hinman, of Atlanta, examined the cavity and reported the tooth completely anesthetized. Actual time of current on in both experiments, 7½ minutes.

REPORT OF CLINIC NO. 3.

Given by Dr. L. E. Custer, Dayton, Ohio.
Name and address of patient, F. M. Hood, Fortress Monroe, Va., Battery K.
Cavity in left central.
Operation, excavating sensitive dentin preparatory for cement filling.
Apparatus used, the Custer Cataphoric Appliance No. 3, and Weston Milliammeter.
Agent used, saturated solution cocain hydrochlorate.
Current turned on at 3.24 P.M.
Current turned off at 3.37½ P.M.
Current on 13½ minutes, reaching 11 volts.
Result obtained very satisfactory. No pain in excavating.

The negative electrode was placed against the cheek, in order to give a short circuit. A wooden wedge was used to hold the positive electrode in the cavity. The application of the current caused little or no pain. Patient says no discomfort was experienced.

C. H. FRINK, *Reporter.*

REPORT OF CLINIC NO. 7.

Given by Dr. S. Eldred Gilbert.
Cavity in right superior cuspid.

Operation, sensitive dentin.
Apparatus used, Gilbert Volt Selector.
Agent used, 25 per cent. solution cocain.
Current turned on at 4.44 o'clock.
Current turned off at 5 o'clock.
Current on 16 minutes.
Result obtained satisfactory.
There was no shock whatever as the current was increased.

L. A. SMITH, *Reporter.*

REPORT OF CLINIC NO. 8.

Given by Dr. W. M. Hollingsworth.
Name and address of patient, Charles Mehlig, D.D.S., 75 W. 40th st., New York.
Cavity in right upper cuspid, labial surface, close to the gum.
Operation, obtunding.
Apparatus used, The S. S. White (Battery, 24 cells, Mesco Battery).
Agent used, cocain muriate, saturated solution.
Current turned on at 4 P.M.
Current turned off at 4.11½ P.M. Second application at 4.18, and removed at 4.26½ P.M.
Current on 20 minutes in all.
Result obtained, success.

JOS. BAUER, *Reporter.*

REPORT OF CLINIC NO. 9.

Given by Dr. H. C. McBrair.
Name and address of patient, D. S. W. Allen, Tampa, Fla.
Fistula opposite right superior central.
Operation, treating fistula.
Apparatus used, Waite & Bartlett Cataphoretic Apparatus.
Agent used, zinc electrode.
Current turned on at 3.06.
Current turned off at 3.10.
Current on 4 minutes.

JOHN I. HART, D.D.S., *Reporter.*

REPORT OF CLINIC NO. 12.

Given by Dr. Simpson.
Name and address of patient, M. Smith, Old Point Comfort.
Cavity in labial surface, central incisor, close to the gum.
Operation, gold filling without the use of rubber-dam.
Apparatus used, Lee S. Smith & Son, 524 Penn ave., Pittsburg, Pa.
Agent used, cocain muriate, saturated solution.
Current turned on at 3.28 P.M.
Current turned off at 3.33 P.M.
Current on 5 minutes.
Result obtained, success.

J. KANE, *Reporter.*

We regret exceedingly that clinic No. 4, by Dr. David, could not be given, because his apparatus had not been received.

Clinics Nos. 5, 6, and 11 were not held, as letters or telegrams were received from Drs. Fogg, Gripps, and Wells, saying that they were unavoidably prevented from attending, and expressing their regrets for the same.

Clinic No. 10 was not held, as Dr. Meeker was not seen or heard from by the committee. Dr. Sontag, of Cleburne, Texas, came prepared to read a paper, to be illustrated by lantern slides, but, by some misfortune, part of the lantern was not received, and so the exhibition could not be given.

The exhibits by the various manufacturers of cataphoric apparatus were full, and we hope proved both interesting and instructive.

C. EDMUND KELLS, JR., *Chairman.*

A motion was made to accept the report.

Dr. S. W. FOSTER said that he desired to voice the appreciation of the Association for the vast amount of work secured by the committees on general clinics and the special cataphoric clinics, and the grand results attained. He therefore moved to amend by adding a special vote of thanks to Drs. Hinman and Kells, chairmen of the committees.

Dr. W. T. ARRINGTON. With all due respect to the gentlemen named, I must take issue on this point of votes of thanks to men who have simply done their duty. It is unnecessary in such a body of men as this. If a man accepts a position he expects to perform the duties pertaining to that position. I hope this Association will cease to do this thing. I speak in behalf of those doing the labor; they don't want it.

Dr. KELLS. I move that the motion be tabled.

This motion was lost.

Dr. TURNER. I quite agree with Dr. Arrington, but, at the same time, it is not exactly graceful to table a motion of this character.

Dr. CRAWFORD. To settle the whole thing, I move a general vote of thanks to everybody who has done his duty. (Laughter.)

An amendment to an amendment being out of order, a vote was taken on the original motion, which was adopted.

The Committee on Necrology offered the following report:

IN MEMORIAM.

At the annual meeting of the Southern Dental Association, held at Fortress Monroe, August the 3d, 1897, the death of Dr. W. N. MORRISON, of

St. Louis, Mo., was formally announced and referred to the Necrological Committee of the Association for such action as would be appropriate and approvable, and in obedience the committee beg leave to submit the following report:

In the death of Dr. W. N. Morrison the dental profession has sustained the sad and grievous loss of a fellow-member distinguished by his high character as a gentleman, his devotion to the interests and advancement of his calling; his attainments and skill as an operator, and by his remarkable endowments as an original inventor and improver of the resources, instruments, and appliances of modern dentistry. He was a younger brother and student of Dr. J. B. Morrison, the inventor of the Morrison chair and the Morrison dental engine, and to Dr. W. N. Morrison himself our profession is indebted for the invention and introduction of that invaluable help to the practitioner, the dental bracket, which is still a popular and approved equipment for the office of the dentist. He was also a pioneer in the operation of replantation, his first cases being reported in 1874.

To Dr. Morrison's wonderful aptitude and inventive talent the dental profession owe a debt of gratitude, and we recognize in his loss a misfortune to be keenly regretted and sadly deplored; therefore,

Resolved, That the Southern Dental Association has learned in sorrow the death of our loved and honored fellow-craftsman, and that this Association herewith tenders its sympathy and sincere condolence to the family of the deceased; that a copy of this report be forwarded to them, and that a record of the same be made in the books of the Association.

John C. Storey, M.D., D.D.S., of Dallas, Texas. It has ever been a striking and indelible mark of Christian civilization to honor the names and memories of the distinguished dead.

Our hearts melt with sorrow, and our sympathies go out in tenderness to the stricken and the bereaved. In measure and degree this may be said of nearly all who die; but when a prince and a great man falls before "the grim reaper," in the maturity of his manhood, with his eye not dim nor his natural force abated, when, humanly speaking, his high destiny was unfulfilled and his noble ends and aims were unaccomplished, a broader interest is aroused than bounds the circle of family and personal friends. Society itself is startled and stunned, and a people lament and bewail an irreparable loss.

Our distinguished friend and professional brother, John C. Storey, was a Christian, scholar, artist, and soldier. He has answered his last "roll-call." We, his survivors and former associates, are left to mourn the loss of one who honored all his relations in life, who was recognized as a leader among man, and who was clothed with the highest honors within the gift of his profession and fellow-craftsmen.

We humbly bow in submission to this sad dispensation of Providence, believing that our loss is the eternal and imperishable gain of our loved and departed friend and brother; therefore, be it

Resolved, That the Southern Dental Association has heard with grief and sorrow the announcement of the death of our honored ex-president and fel-

low-member; that this Asssociation herewith tenders to the family of our deceased brother its tenderest sympathy and sincere condolence, and that a copy of this paper be entered of record upon our books, and also one be forwarded to the family of the deceased.

Dr. FRANCIS PEABODY, of Louisville, Ky., died at Fort Myers, Fla., in February, 1897. He was a charter member of Kentucky State Dental Association, and ex-president of same. Was a member of the American and Southern Dental Associations, President of Faculty of Louisville College of Dentistry, Professor of Operative Dentistry, Materia Medica and Therapeutics. At the time of his death was President of the Falls Cities Dental Club, of Louisville. He devoted his life to the elevation of his profession.

So much for Dr. Peabody as an honored and distinguished member of the dental profession; it may be justly added that he was a high man in all his relations in life. An adopted son of the South, he was patriotic, honest, and faithful; as a friend he was true and trustworthy in every regard, and as a foe he was "worthy the brightest and sharpest steel."

Dr. Peabody's death was a loss to be deplored, and we as an association honor ourselves in honoring his memory; therefore, be it

Resolved, That we lament the loss of a noble brother, and tender his family our sympathy in their bereavement; that a copy of this paper be entered of record in our books by the Secretary, and one furnished the family of the deceased.

W. W. H. THACKSTON,
H. E. BEACH,
G. F. S. WRIGHT,
Committee.

Dr. T. M. ALLEN. I move that the report be adopted, and that a copy be sent to the families of the deceased. Adopted.

Dr. WRIGHT. I move that a page of the minutes be inscribed to the memory of each of the deceased. Adopted.

Dr. S. W. FOSTER, chairman *ex-officio* of the Publication Committee, submitted the following proposition, which, on motion, was accepted, with the amendment that seven cents per copy be allowed for black cloth binding, uniform with the volumes of the past two years:

PHILADELPHIA, July 26, 1897.

Dear Sir,—Yours of the 22d to hand to-day. Yes, we are willing to again undertake the publication of the official transactions of the Southern Dental Association, on the same terms as last year,—you to furnish the copy properly edited, and we to supply the copies to such number as may be needed without cost to the Association, except the cloth binding.

We suppose you have already made arrangements for the report.

Yours truly,
F. L. HISE, *Business Manager of the Dental Cosmos.*

To Dr. S. W. FOSTER, *Sec'y Southern Dental Ass'n, Atlanta, Ga.*

Dr. McKellops. What becomes of the extra copies of our Transactions, after all the members have been supplied? The Army Medical Museum and Library at Washington is willing to accept them, and so place them where they would be of benefit to the profession and thc world at large. The American Association has made this disposition of their extra copies.

Dr. Eggleston. I would heartily second a motion to that effect.

Dr. Foster. If a motion to that effect is made, it must be modified and limited to a certain number of copies. Every few weeks I receive a letter from some one who wants a copy. This year we have but eight or ten copies left over. Members who for any reason have failed to receive a copy are entitled to one on application for it.

Dr. McKellops. I refer only to the disposition of those superfluous copies that are left over after all have been supplied, and for which the Association has no use.

Dr. J. H. Moore. I would suggest that this year some extra copies be ordered especially for the Museum Library.

Dr. J. Y. Crawford. If I understand the matter correctly, the object of such a motion would be twofold in character; first, we would be making a valuable contribution to the library; and in the second place it secures a permanent home for our archives, furnishing an authentic history of the Southern Dental Association. Whatever we thus donate would be not only a contribution to the museum, but would stand as a permanent memorial of this organization. Thenceforth there would be no question as to where to go for authority in case of any disputed question in regard to the history of our organization. As a branch of the new National Association we shall have new books—we shall begin over again.

Dr. T. M. Allen. It is not my understanding of the matter that we will begin over again, and I refuse to admit that there will be any beginning anew. I am not ready to vote away our archives. Do not put this question to vote until we understand thoroughly what we are doing.

The Chair. All who are in favor of donating twenty copies of our Transactions to the Army Museum and Library will say "aye." Carried.

Dr. J. S. Thompson. At the meeting of the National Dental

Association it was suggested that the two associations, the American and the Southern, donate to the treasury of the National Association the sum of one dollar for each and every member in good standing on the books of the Treasurers. The American Association has ratified that provision; shall we do the same?

Dr. W. E. WALKER. The object of this is to pay for the publication of the constitution and by-laws of the National Association. There is no money in the treasury, as there are no dues payable at the present meeting. I therefore move that the Treasurer of the Southern Dental Association be authorized to turn over to the Treasurer of the National Association the sum of one dollar for each member in good standing at the time of adjournment.

Seconded and carried.

Dr. KELLS. I move that a vote of thanks be tendered The S. S. White Dental Manufacturing Company for their valuable assistance in the clinic room.

Dr. J. S. THOMPSON. I move to include Mr. F. N. Pike, proprietor of the Hygeia Hotel, for low rates and other courtesies; and to the press for liberal mention of our proceedings. Carried.

The following resolutions were also adopted:

Resolved, That a vote of thanks be tendered to the railroads comprising the Southern Passenger Association of the Seaboard Air Line for granting such low rates for this meeting.

Resolved, That the thanks of this Association are hereby tendered the *Norfolk Pilot* for the courteous and generous way in which it has reported the proceedings of our several sessions, and for the generosity in sending over a supply of papers for distribution among the members.

Dr. J. Y. CRAWFORD. It seems that, by force of circumstances, we have arrived at a crisis in our history as an organized body. We, as the Southern Dental Association, have decided that it is to the advantage of the dental profession to organize a National Dental Association, and that we are ready to become a part of that organization. I now offer the following resolution:

Resolved, That we now declare ourselves a branch of the National Dental Association, to be known as the Southern Dental Association.

I ask this society to pass that resolution, and I pledge my honor if it does not meet the approbation of this organization to withdraw it.

The CHAIR. All in favor of the resolution offered by Dr. Crawford will say "aye."

Resolution adopted.

Dr. CRAWFORD. With your consent, it is proper and necessary that a committee should be appointed with plenary powers to so revise the constitution and by-laws of the old Southern Dental Association that it will not conflict with the constitution of the National Association, of which we are now a branch, by virtue of your present vote and by the joint vote of the two Associations. I now move that you, Mr. President, appoint a committee with power as I have stated.

The CHAIR. If there is no objection, I will appoint the committee that has had in charge the matter of bringing about the union, Dr. L. G. Noel, chairman, with Drs. Beadles, Turner, Knapp, and Eubank.

So agreed.

Dr. CRAWFORD. There remain yet some matters to be attended to. We have now no constitution or by-laws, except by courtesy, until the old constitution is remodeled. I ask unanimous consent that the Chair appoint a Nominating Committee to bring in a list of officers on the basis of the old constitution, if you please, to act with plenary powers until our next meeting.

Dr. T. M. ALLEN. I don't see why we should not elect by ballot, as heretofore.

Dr. CRAWFORD. I asked for unanimous consent. One objection ends it. The old American Association has adjourned, *sine die*. I move that when we adjourn, under any form whatever, we meet in short joint session as a branch of the National Association.

Carried.

Dr. CRAWFORD. I move that we now proceed to the election of officers. Shall it be by ballot, or shall we suspend the rules and elect by acclamation?

The CHAIR. There is no precedent for the latter method.

Dr. CRAWFORD. Then I rise to ask the unanimous consent of the Association to the nomination of Dr. E. P. Beadles, of Danville, Va., as President, and that the rules be suspended and the Secretary cast the vote of the Association.

No objection being made, it was so ordered, and Dr. Beadles declared elected President for the coming year.

In the same way Dr. G. F. S. Wright nominated Dr. W. E. Walker, Pass Christian, Miss., for Vice-President, the Secretary casting the ballot.

Dr. Crawford nominated Dr. C. Edmund Kells, Jr., for Second Vice-President, but at the request of Dr. Kells withdrew the nomination, and nominated Dr. T. P. Hinman, of Atlanta, Ga., the Secretary casting the ballot.

Dr. J. S. Thompson nominated Dr. F. P. Welch, of Pensacola, for Third Vice-President, the Secretary casting the ballot.

The following officers were elected by acclamation: Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. S. W. Foster, Atlanta, Ga., Recording Secretary.

The members of the Executive Committee were also re-elected to perform their duties as heretofore.

St. Augustine, Fla., was unanimously selected as the next place of meeting, the time being left to the Executive Committee, conjointly with the Committee of Arrangements of the Florida State Association.

Dr. W. W. H. THACKSTON. I beg leave to submit a motion for a vote of thanks to the retiring President for the dignity and ability with which he has fulfilled the duties of his high office. There has been no higher record made in the history of this Association. You made no mistake in elevating him to the position he has so ably filled. Those in favor will please say "aye."

Carried with enthusiasm.

Dr. CRAWFORD. By resolution adopted in joint session and ratified by you, the Treasurer has been authorized to pay over into the treasury of the National Association the sum of one dollar for every member of this Association. With the amount he will send in to the Treasurer of the National Association his roll of *bona fide* members, for enrollment as members of the National Association. The balance of funds in the treasury will remain in *statu quo* in the treasury of the Southern division of the National Association, to be known as the Southern Dental Association. At all subsequent meetings the Treasurer will retain two-fifths of the membership fees, the remaining three-fifths being turned over to the Treasurer of the National Association.

The next order of business being the installation of officers, Drs. Wright and J. Hall Moore were appointed to escort the President, Dr. E. P. Beadles, to the chair.

Dr. RICHARDS. It is with pleasure that I turn over to you this gavel. Your ambition and ability will doubtless lead you to wield it more like a Richmond than a Richards!

Dr. BEADLES. I will not consume your time with idle words. You know my feelings. I realize that the work of the coming year will not be quite the same as in the past, but I believe we can have as good a meeting as we have ever had, and I hope you will all help me to make it such.

The Association then took a recess, and proceeded to take part in the final session of the National Association, when official announcement was made of this organization as the Southern Division.

The Association then adjourned to meet at St. Augustine, Fla., at the time to be appointed by the Executive Committee.

APPENDIX.

Minutes of the Organization and Transactions

of the National Dental Association.

MINUTES OF THE CONVENTION RESULTING IN THE FORMATION OF THE NATIONAL DENTAL ASSOCIATION.

By W. E. WALKER.

Old Point Comfort, Aug. 5, 1897.

The members of the American Dental Association and of the Southern Dental Association met in convention in the ballroom of the Hygeia Hotel, Old Point Comfort, Virginia, at 2.30 P.M., on Thursday, August 5, 1897, for the purpose of forming a new dental association, through the union of the American and Southern Dental Associations.

Dr. Thomas Fillebrown, Chairman of the Committee on Union of the American Dental Association, called the convention to order. Dr. John B. Rich, of Washington, D. C., was chosen Chairman, and Drs. W. E. Walker, of Pass Christian, and Geo. H. Cushing, of Chicago, were chosen Secretaries.

Dr. J. D. Patterson introduced the following resolution, which was adopted:

Resolved, That the members of the American Dental Association and the members of the Southern Dental Association do hereby organize themselves into a body to be known and styled the National Dental Association.

The following resolution was offered by Dr. Marshall:

Resolved, That the Constitution, By-Laws, and Rules of Order, decided upon and presented by the joint committee of these two bodies be and are hereby adopted as the Constitution, By-Laws, and Rules of Order of the National Dental Association.

Before this motion was put the following, introduced by Dr. Richards, was after some discussion adopted:

Resolved, That no speaker shall occupy the floor for more than three minutes without the consent of a majority of this body.

Dr. Marshall's resolution was then adopted.

Dr. Brophy moved that we proceed to the election of officers.

Dr. Taft moved a reconsideration of the action by which the Constitution was adopted.

After discussion, Dr. Taft, with the consent of his second, withdrew his motion.

Dr. C. N. Peirce moved that the committee which formulated the Constitution and By-Laws make nominations for officers for the coming year, to be presented to the convention for its action.

Dr. H. E. Beach pointed out the provision of the Constitution requiring that nominations be made by informal ballot.

Dr. L. Ottofy moved that Dr. Brophy's motion be laid on the table. So ordered.

Dr. E. P. Beadles moved that the Secretary read the Constitution and By-Laws, which motion prevailed, and they were read by the Secretary.

Dr. Ottolengui moved that Dr. Brophy's motion be taken from the table, and that we now proceed to the election of officers, which motion prevailed, and Drs. Hunt and Noble were appointed tellers.

On the informal ballot, Dr. Fillebrown receiving fifty-one out of ninety-two votes cast, the informal ballot was made formal and Dr. Fillebrown was declared the President of the National Dental Association.

Dr. Richards, the retiring President of the Southern Dental Association, and Dr. Truman, the retiring President of the American Dental Association, were appointed to escort the newly-elected President to the chair.

It was voted to take a recess for dinner, to reconvene at 4.30 P.M.

NATIONAL DENTAL ASSOCIATION.

FIRST MEETING.

The Association was called to order at 4.30 P.M., pursuant to adjournment, by the President, Dr. Fillebrown.

The election of officers was proceeded with.

On motion it was decided to ballot for the Recording Secretary before any other officers.

Drs. Hunt and Noble were appointed tellers. Dr. Geo. H. Cushing, of Chicago, was elected.

Dr. Cushing here assumed his duties, and the minutes from this to the close of the session are by him.

On motion of Dr. Crawford, by unanimous consent, it was decided to appoint an Assistant Secretary.

On motion of Dr. Peirce the Secretary was instructed to cast the vote for W. E. Walker for Assistant Secretary.

Proceeded to ballot for Vice-President for the East.

On motion the Secretary was instructed to cast the vote for Dr. James McManus, of Hartford, who was thus duly elected.

Balloting for Vice-President from the West resulted in the election of Dr. L. L. Dunbar, of San Francisco.

The ballot for Vice-President from the South resulted in the election of Dr. B. Holly Smith, of Baltimore.

On motion, the Secretary was instructed to cast the ballot for Dr. Emma Eames Chase for Corresponding Secretary.

The Secretary was instructed by vote to cast the ballot for Dr. H. W. Morgan, of Nashville, for Treasurer.

Dr. Beadles, of Virginia, moved that the President cast the ballot for the entire Executive Committee. Carried.

The following were elected:

For the South, L. G. Noel, M. F. Finley, and George Eubank; for the West, J. N. Crouse, W. P. Dickinson, and J. D. Patterson; for the East, C. N. Peirce, H. A. Smith, and V. H. Jackson.

Drs. Eubank, Dickinson, and Peirce serve for one year, Drs. Finley, Patterson, and Smith for two years, and Drs. Crouse, Noel, and Jackson for three years.

The selection of place of next meeting now being in order, Denver, Omaha, and Minneapolis were nominated. Omaha was selected.

The following resolution was adopted:

Resolved, That the Treasurer of this Association be directed to request the Treasurers of the American Dental Association and of the Southern Dental Association to furnish him with the lists of the permanent members of their respective Associations, and he is hereby directed to add the names so furnished him to the Constitution of this Association as set forth in the provisions of membership in Article III, Section 5, of the Constitution; and be it further

Resolved, That said act of the Treasurer shall be legal and binding the same as if the signatures had been attached by the persons themselves.

The following was adopted:

Resolved, That a committee of three be appointed by the President of this Association to take into consideration the question of establishing a journal for the publication of the transactions of this Association and other original matter pertaining to dental surgery and the collateral sciences, and that they report to this body at the next annual meeting.

The following resolution was presented by Dr. Crawford:

Be it Resolved, That it is the sense of the National Dental Association that when any member of the dental profession, in good standing, presents a certificate of registration from any State in the Union, that the same should be admitted to registration in any other State without additional examination.

On motion, the President, Dr. Fillebrown, was authorized to have printed as many copies of the Constitution and By-Laws as he may deem necessary.

On motion, it was resolved that when we adjourn it shall be to meet to-morrow at 12 M., at the Chamberlin Hotel.

The following was adopted:

Resolved, That the two Associations participating in this organization be requested to contribute from their respective treasuries to the treasury of the National Dental Association the sum of one dollar per member for all members whose dues are fully paid; and in view of this contribution, the dues of all such members of the National Dental Association for the year 1897 shall be remitted.

The following resolution, offered by Dr. R. Finley Hunt, was adopted:

Resolved, That a committee of three be appointed by the President to report at the next annual meeting a measure looking to the preparation of a full history of the dental profession.

On motion, adjourned till 12.30 to-morrow.

Thursday Noon.

The Association met according to adjournment at 12.30; the President, Dr. Fillebrown, in the chair.

The minutes of yesterday were read and approved.

The following committees were announced:

ORGANIZATION OF THE EXECUTIVE COMMITTEE.—J. N. Crouse, *Chairman;* M. F. Finley, *Secretary.*

FIRST DIVISION. COMMITTEE OF ARRANGEMENTS.—J. N. Crouse, L. G. Noel, and H. A. Smith.

SECOND DIVISION. CREDENTIALS AND AUDITING COMMITTEE.—V. H. Jackson, J. D. Patterson, M. F. Finley.

THIRD DIVISION. COMMITTEE ON VOLUNTARY ESSAYS.—C. N. Peirce, W. P. Dickinson, George Eubank.

Publication Committee.—A. W. Harlan, V. E. Turner.

Committee on National Museum and Library.—Williams Donnally, H. W. Morgan, and T. Fillebrown.

Committee on Terminology.—S. H. Guilford, Grant Molyneaux, and S. W. Foster.

Committee on Journal.—J. S. Marshall, J. Taft, L. G. Noel.

Committee on History.—Charles McManus, R. Finley Hunt, and Gordon White.

The Sections were organized and finally completed as follows:

SECTION I. Prosthetic Dentistry, Chemistry and Metallurgy.—Grant Molyneaux, Chairman; R. R. Freeman, Secretary. W. S. Smith, Henry McManus, Louis C. Le Roy, Howard S. Seip, J. Hall Moore, George H. Wilson, P. J. Wilson, Herbert C. Miller, A. P. Johnstone, William Ernest Walker, William S. Hosford, George M. Whitfield, D. D. Smith, George Evans, J. N. Van De Water, J. Rollo Knapp, S. E. Gilbert, T. S. Waters, W. H. Fundenberg, C. Edmund Kells, Jr., H. S. Sutphen, S. A. Freeman, Jules J. Sarrazin, J. A. Hall, N. D. Edmonds, George W. Warren, J. Edwin Boozer, C. H. Frink, E. G. Quattlebaum, Ralph B. Reitz, J. V. Haller, T. M. Allen, S. W. Allen, H. L. Ambler, L. Augspath, J. W. Ayers, Boyd H. Baker, L. L. Barber, U. D. Billmeyer, J. Adams Bishop, E.

A. Bogue, Alonzo Boice, H. H. Boswell, C. T. Brockett, I. N. Broomell, C. J. Essig, D. E. Everitt, George Eubank, W. H. Ewald, George L. Field, J. G. Fife, W. B. Finney.

SECTION II. Dental Education, Literature, and Nomenclature.—B. H. Catching, Chairman; M. F. Finley, Secretary. H. T. Smith, Jacob L. Williams, L. Ashley Faught, Eugene H. Smith, Charles McManus, Frank G. Gregory, Thomas C. Stellwagen, C. N. Peirce, S. H. Guilford, J. Hall Moore, Henry W. Morgan, J. Taft, William A. Montell, F. T. Murlless, Jr., C. D. Cook, Edward C. Kirk, D. D. Smith, L. D. Shepard, A. O. Hunt, S. E. Gilbert, H. S. Sutphen, B. D. Brabson, W. W. H. Thackston, H. H. Johnson, T. M. Allen, H. L. Ambler, L. L. Barber, J. Adams Bishop, E. A. Bogue, C. T. Brockett, A. J. Brown, H. J. Burkhart, C. S. Butler, Allen R. Carr, I. N. Carr, C. S. Case, J. S. Cassidy, W. G. Chase, C. C. Chittenden, Dwight M. Clapp, W. R. Clifton, S. B. Cook, W. H. Cook, J. P. Corley, L. M. Cowardin, T. E. Craddock, William Crenshaw, J. N. Crouse, G. L. Curtis, E. T. Darby, L. L. Dunbar, W. St. George Elliott, Charles J. Essig, George L. Field, W. H. Morgan.

SECTION III. Operative Dentistry.—J. Y. Crawford, Chairman; Frank Holland, Secretary. C. N. Johnson, Corydon Palmer, P. S. Bollinger, H. T. Smith, L. P. Bethel, S. Freeman, S. G. Perry, J. I. Hart, L. C. Taylor, W. S. How, Harvey Iredell, E. S. Gaylord, S. C. G. Watkins, A. J. Prosser, James McManus, Louis C. Le Roy, Charles K. Van Vleck, H. Barnes, A. H. Fuller, G. W. Hoysradt, W. E. Page, Howard S. Seip, S. H. Guilford, J. Hall Moore, P. J. Wilson, Earl P. Hawes, H. B. Tileston, William Conrad, S. B. Palmer, H. G. Ulrich, B. Eugene Holcombe, J. T. Lippincott, B. Holly Smith, Thomas T. Moore, J. Percy Corley, R. J. Hart, B. H. Baker, Thomas Fillebrown, Louis Jack, B. F. Luckey, D. D. Smith, G. L. S. Jameson, J. W. Meng, S. E. Gilbert, T. S. Waters, C. H. Harroun, W. F. Fundenberg, S. L. Goldsmith, H. S. Sutphen, Robt. I. Verplanck, B. Oscar Doyle, C. L. Alexander, Jules J. Sarrazin, W. Woolsey, C. S. Stockton, F. L. Wood, F. P. Welch, W. W. Shryock, M. B. Culver, V. E. Turner, I. Simpson, Thomas T. Moore, J. D. Pfeifer, A. R. Melendy, L. Augspath, J. W. Ayers, J. Adams Bishop, C. T. Brockett, A. J. Brown, H. J. Burkhart, C. S. Butler, C. R. Butler, Allen R. Carr, I. N. Carr, W. G. Chase, C. C. Chittenden, Dwight M. Clapp, W. R. Clifton, S. B. Cook, W. H. Cook, T. E. Craddock, William Crenshaw, J. N. Crouse, George H. Cushing, E. T. Darby, L. L. Dunbar, W. St. George Elliott, George L. Field, S. W. Foster, W. B. Finney, John E. Frazier, G. J. Friedrichs, Leo Greenbaum, Charles S. Grindall, O. J. Gross, T. S. Hacker, James H. Harris, J. S. Hardy, H. F. Harvey, Joseph Head, Thomas P. Hinman, J. E. Hinkins, D. M. Hitch, N. S. Hoff, Frank Holland, George E. Hardy, George E. Hunt, Robert Huey, Lee F. Huffman, Henry A. Hull, J. Searle Hurlbut, C. S. Inglis, Harvey Iredell, W. T. Jackman, F. A. Remington, B. J. Pressey, J. B. Pressey, J. W. Quattlebaum, C. B. Rohland, John B. Rich, W. E. Richardson, W. H. Richards, N. J. Roberts, D. N. Rust, B. Rutledge, R. M. Sanger, S. P. Sharp, N. T. Shields, A. H. Sibley, Charles Sill, H. H. Sisson, B. Holly Smith, J. W. Smith, H. A. Smith,

M. B. Straight, John F. Stephan, B. Q. Stevens, R. A. Talbot, J. G. Templeton, Henry C. Thompson, J. S. Thompson, J. L. Walker, R. H. Walker, W. E. Walker, William Wallace Walker, J. W. Wassall, W. C. Wendel, T. L. Westerfield, T. P. Whitby, J. H. White, T. C. Wilson, J. L. Wolf, G. F. S. Wright.

SECTION IV. Histology and Microscopy.—I. P. Wilson, Chairman; Thomas P. Hinman, Secretary. L. P. Bethel, Louis C. Le Roy, Charles K. Van Vleck, A. F. Sonntag, H. Jerome Allen, S. E. Gilbert, A. J. Brown, C. S. Butler, I. N. Carr, W. G. Chase, W. H. Cook, J. A. Dale, E. T. Darby, I. B. Davenport, J. W. David, B. Douglass, L. L. Dunbar, A. R. Eaton, Edward Eberle, Edward Eggleston, John E. Frazier.

SECTION V. Materia Medica and Therapeutics.—J. S. Cassidy, Chairman; L. P. Bethel, Secretary. A. W. Harlan, S. Freeman, James Truman, W. A. Price, Wilbur F. Litch, W. E. Griswold, S. E. Gilbert, A. H. Peck, C. R. Jefferis, A. R. Starr, H. S. Sutphen, M. W. Foster, N. S. Hoff, E. S. Holmes, B. E. Holcombe, George E. Hunt.

SECTION VI. Physiology and Etiology.—J. D. Patterson, Chairman; L. E. Custer, Secretary. W. S. How, L. Ashley Faught, Louis C. Le Roy, Emma Eames Chase, Thomas C. Stellwagen, M. L. Rhein, S. E. Gilbert, H. A. Smith, J. Howard Gaskill, J. Newton Giddens, A. H. Gilson, N. J. Goodwin, C. W. Granger, Leo Greenbaum, Meta T. Haley, R. Finley Hunt, Robert Huey, H. H. Jackson, H. R. Jewett, A. P. Johnstone, G. E. Johnson, R. H. Jones, Henry C. Jones, R. V. Jones, Victor S. Jones, H. H. Keith, R. N. Kesterson, A. B. King, Edward M. Kettig, Samuel E. Knowles.

SECTION VII. Anatomy, Pathology and Surgery.—W. C. Barrett, Chairman; George Clement, Secretary. John S. Marshall, L. P. Bethel, T. W. Brophy, J. D. Thomas, C. A. Brackett, Frank G. Gregory, W. H. Whitslar, M. L. Rhein, M. C. Smith, S. B. Dewey, Thomas Fillebrown, T. T. Hayward, A. O. Hunt, S. E. Gilbert, F. A. Shotwell, C. P. Pruyn, T. L. Gilmer, W. T. McLean, Thomas T. Moore, J. H. Benton, A. G. Friedrichs, H. A. Lowrance, J. Thomas Lippincott, John D. Loetzerich, B. F. Luckey, W. A. Lyons, R. Maercklein, E. B. Marshall, F. J. Maynard, Theodore Menges, W. H. Morgan, L. G. Noel, A. L. Northrop, J. E. Orrison, T. H. Parramore, F. A. Remington.

SECTION VIII. Hygiene and Prophylactic Dentistry.—W. T. Arrington, Chairman; A. H. Thompson, Secretary. Louis C. Le Roy, H. G. Ulrich, J. Taft, T. T. Hayward, S. E. Gilbert, Williams Donnally, F. H. McAnnally, H. C. McBrair, H. J. McBride, H. B. McFadden, George S. Nason, J. J. Nelson, H. B. Noble.

SECTION IX. Orthodontia.—V. H. Jackson, Chairman; L. P. Dotterer, Secretary. Louis Ottofy, L. C. Taylor, W. E. Grant, Louis C. Le Roy, Frank G. Gregory, R. Ottolengui, S. H. Guilford, M. C. Smith, J. W. Canaday, J. N. Van De Water, W. N. Cogan, C. L. Goddard, W. H. Fundenberg, Jules J. Sarrazin, L. D. Carpenter, Gordon White, H. E. Beach, C. S. Case, H. B. Noble.

SECTION X. Clinics. H. J. McKellops, Chairman; E. P. Beadles, Secretary. L. C. Taylor, William Conrad, M. B. Culver, J. Edwin Boozer, I. Simpson, S. Dickson.

The following standing resolution was adopted:

Resolved, That any member of the dental profession who has been in reputable practice for a period of fifty years may be elected to permanent membership in this Association without the payment of dues; and any member of this Association who has been in practice for a like period shall have his dues remitted thereafter by presenting the fact to the Treasurer of the Association.

The following was adopted:

Resolved, That the Committee on National Dental Library and Museum be authorized to seek in the interest of public health, at government expense, the appointment in the Army Medical Library and Museum of at least one dentist of eminent fitness, whose time when so employed shall be devoted to the advancement of dental science.

The following was adopted:

Resolved, That a committee of three be appointed whose duty it shall be to confer with State and local societies and to aid and foster new societies when and where desirable.

The President appointed as that Committee, J. Taft, J. Y. Crawford, and James McManus.

On motion of Dr. Crawford, the Association authorized the publication of all the proceedings of this body as a supplement to the transactions of the American and of the Southern Dental Associations.

The following motion prevailed:

Resolved, That a committee be appointed from this Association consisting of one member from each State and Territory, to work in the interest of the Dental Protective Association.

The Committee as named is as follows:

Alabama.—W. J. Reynolds, Selma.
California.—L. A. Teague, San Francisco.
Colorado.—P. T. Smith, Denver.
Connecticut.—C. P. Graham, Middletown.
Florida.—W. A. McQuaig, Lake City.
Georgia.—J. A. Chapple, Atlanta.
Illinois.—J. A. Davis, Galesburg.
Indiana.—W. L. Rawls, Indianapolis.
Iowa.—K. M. Fullerton, Cedar Falls.
Kentucky.—J. H. Letcher, Danville.
Kansas.—J. P. Root, Kansas City.
Maine.—F. A. Burnham, Saco.

Maryland.—F. F. Drew, Baltimore.
Massachusetts.—W. E. Boardman, Boston.
Michigan.—A. W. Diack, Detroit.
Mississippi.—P. N. Wright, Senatobia.
Minnesota.—W. D. James, Tracy.
Missouri.—J. T. Fry, Moberly.
Nebraska.—J. S. McCleery, Beatrice.
New Hampshire.—W. R. Blackstone, Manchester.
New Jersey.—J. L. Crater, Orange.
New York.—H. J. Burkhart, Batavia.
North Carolina.—H. V. Horton, Winston.
North Dakota.—H. L. Starling, Fargo.
Ohio.—L. E. Custer, Dayton.
Pennsylvania.—W. F. Litch, Philadelphia.
Rhode Island.—E. P. Robinson, Newport.
South Carolina.—J. C. Oeland, Spartanburg.
Tennessee.—W. H. Richards, Knoxville.
Texas.—J. L. Buchanan, Bonham.
Vermont.—C. S. Campbell, St. Albans.
Virginia.—J. V. Haller, Wytheville.
Washington.—R. B. Gentle, Olympia.
West Virginia.—Robert Tever, Wheeling.
Wisconsin.—R. G. Richter, Milwaukee.

On motion, adjourned to 2 P.M.

Afternoon Session. Thursday.

Association was called to order at 2 P.M., the President in the chair.

The minutes of the morning session were read and approved.

The following notices of proposed amendments were filed:

By J. Y. Crawford,—

To change the name of this Association from The National Dental Association to The American Association of Dental Surgeons.

By Dr. Guilford,—

To change the name from that of National Dental Association to that of The American Association of Dental Science.

By Dr. Stellwagen,—

To amend Article I by striking out the words "National Dental" and inserting in their place the words "American Stomatological."

The minutes were finally read and approved, and the Association adjourned to meet at Omaha the first Tuesday after the last Saturday in August, 1898.

GEORGE H. CUSHING, *Secretary.*

CONSTITUTION AND RULES OF ORDER OF THE NATIONAL DENTAL ASSOCIATION.

PREAMBLE.

We, the members of the American Dental Association and of the Southern Dental Association, do declare ourselves a Society to cultivate the science of dentistry, and have adopted the following Constitution and Rules of Order for our government:

CONSTITUTION.

ADOPTED AUGUST, 1897.

ARTICLE I.

NAME.

This organization shall be known by the name of the National Dental Association.

ARTICLE II.

OBJECT.

The object of this Association shall be to cultivate the science and art of dentistry and all its collateral branches, to elevate and sustain the professional character of dentists, to promote among them mutual improvement, social intercourse, and good feeling, and collectively to represent and have cognizance of the common interests of the dental profession.

ARTICLE III.

MEMBERS TO BE OF THREE CLASSES.

SECTION 1. The members of this Association shall be of three classes, —viz, permanent, delegate, and honorary members; the two former classes having equal rights and privileges, except that none but permanent members shall be eligible to office.

PERMANENT MEMBERS.

SEC. 2. Permanent members shall consist of those who, coming as delegates and complying with the requirements of the Association, shall sign a statement in a book to be kept for that purpose signifying to the Treasurer a desire for permanent membership.

DELEGATE MEMBERS.

SEC. 3. All delegate members shall be practitioners of dentistry. They shall be received only from permanently organized State dental societies.

They shall be elected by ballot at some regular meeting of their society, and shall be members who have done some meritorious work for the profession; but no person shall be received as a delegate who is in arrears for dues to this Association.

SEC. 4. Honorary members shall consist of prominent worthy members of the dental profession residing in foreign countries, who shall be elected by ballot.

SEC. 5. It is hereby specially provided that all persons at present permanent members of the American Dental Association and of the Southern Dental Association are permanent members of this Association, and entitled to all the privileges of the class to which they belonged, without further action, and the Treasurer is hereby directed to transcribe their names upon the roll of membership of this Association.

ARTICLE IV.

DELEGATES FROM STATE SOCIETIES.

SECTION 1. Each State society may send one for every ten of its active members as delegates to this Association for one year, upon complying with the requirements of its Constitution; but no society shall be entitled to representation that does not adopt or substantially recognize the Code of Ethics of this Association.

SEC. 2. Each delegate shall present credentials which shall be approved by the Executive Committee.

SEC. 3. If the Committee on Credentials has knowledge that any applicant for membership is violating the Code of Ethics, said applicant shall not be received, but shall be referred by the committee to the societies whose delegates they are, and in no case shall this Association be compelled to treat with violations of the Code except the violator is a member of this body and has no membership in any local body.

SEC. 4. This Association will receive no delegates who, since August, 1875, shall have entered the profession without having first graduated at some reputable dental or medical college.

ARTICLE V.

SIGNING CONSTITUTION.

SECTION 1. Each new member, before voting or speaking on any subject before the meeting, shall sign this Constitution, inscribing his name and the title of the society from which he receives his appointment.

DUES.

SEC. 2. The annual dues for membership in this Association shall be five dollars.

DUES—TO BE PAID.

SEC. 3. No member is eligible to office, nor can he speak or vote in this Association or in any of its branches, until his annual dues are paid.

DUES—IF UNPAID.

SEC. 4. If the dues of any member remain unpaid for two years, his name shall be erased from the list of members of this Association.

CONDUCT OF MEMBERS.

SEC. 5. Any act of special immorality or unprofessional conduct committed by a member of this Association shall be referred to the Executive Committee, whose duty it shall be to thoroughly examine into the case, and if the charges be sustained to report at the next meeting of the annual session at which the charges are preferred. Whereupon, by a vote, the offending member may be reprimanded or expelled, a two-thirds vote being required for expulsion, a majority being sufficient for reprimand.

EXPELLED MEMBERS.

SEC. 6. Any member of this Association being expelled or suspended from his local society shall from that date cease to be a member of this body.

RESIGNATION OF MEMBERS.

SEC. 7. Any member not in arrears may offer his resignation, upon the acceptance of which his membership shall cease; but the Association may at any time thereafter reinstate such member by unanimous consent.

ARTICLE VI.

OFFICERS.

SECTION 1. The officers of this Association shall be a President, three Vice-Presidents, Corresponding Secretary, Recording Secretary, Treasurer, and an Executive Committee consisting of nine members.

TERM OF OFFICE.

SEC. 2. Each officer, except as otherwise provided, shall hold his appointment for one year, or until another is elected and qualified to succeed him.

ELECTION OF OFFICERS.

SEC. 3. The President, Vice-Presidents, Corresponding Secretary, Recording Secretary, Treasurer, and members of the Executive Committee shall be elected by ballot in open session of the Association. Three members of the Executive Committee shall be chosen from each division.

After 1897 the President shall be chosen from the division in which the meeting is being held.

SEC. 4. One of the Vice-Presidents shall be chosen from each section, namely, one from the East, one from the West, and one from the South, and shall rank by seniority.

SEC. 5. The candidates for President and Vice-Presidents shall be nominated by an informal ballot of the Association. The three names, or, in case of a tie, the four names, having the greatest number of votes shall be the sole nominees.

A formal ballot shall then be taken, in which a majority of the ballots cast shall be necessary to a choice.

The informal ballot may be made formal by a three-fourths vote of the members present.

ARTICLE VII.

DUTIES OF OFFICERS.

Duties of President.

SECTION 1. The President shall preside according to parliamentary usage as laid down in "Roberts's Rules of Order" and the rules of order adopted by this Association, and shall present an annual address.

Duties of Vice-Presidents.

SEC. 2. In the absence of the President, one of the Vice-Presidents shall perform the duties of the office, and in the absence of these officers a chairman *pro tem.* shall be appointed by the Executive Committee.

Duties of Corresponding Secretary.

SEC. 3. The Corresponding Secretary shall attend to the correspondence of the Association with the societies therein represented, and with other scientific bodies as may be desirable.

Duties of Recording Secretary.

SEC. 4. The Recording Secretary shall keep accurate minutes of the proceedings of the Association, preserve the archives and unpublished documents, and attend to the other duties that pertain to his office. He shall be *ex officio* chairman of the Publication Committee, and shall see that due notice is given of the time and place of the meetings of the Association.

Duties of Treasurer.

SEC. 5. The Treasurer shall hold all the moneys belonging to the Association, and shall keep an accurate account as between the Association and its members. He shall furnish bonds satisfactory to the Executive Committee. He shall attend the meeting of the Executive Committee at 8 A.M. on the day of the annual meeting to receive dues, and shall attend at roll-call to verify the list of names, checking all such as are in arrears for dues; he shall restore such names upon payment of dues within the legal limits, and shall notify all whose names may be erased from the list of membership. He shall pay the drafts of the Secretary, countersigned by the President, and shall report to the Executive Committee, where his accounts shall be audited and by whom his report shall be presented to the Association, together with their own.

SEC. 6. All resolutions appropriating money, except for the legitimate expenses of this Association, shall require a two-thirds vote of all the members present.

ARTICLE VIII.

EXECUTIVE COMMITTEE.

SECTION 1. The Executive Committee shall consist of nine members, and shall be the business committee of the Association, to whom shall be referred all business not otherwise specially provided for. They shall report at each meeting, under the proper head, their doings for the current year.

CLASSIFICATION OF EXECUTIVE COMMITTEE.

SEC. 2. At the first election of the Executive Committee the first three shall be elected to serve three years, the second three for two years, and the last three for one year, and thenceforward three new members shall be elected each year by ballot, one from each division, to serve three years, and in case of the absence of any member of this committee his place may be temporarily filled by the remaining members of the committees.

SUB-DIVISION OF EXECUTIVE COMMITTEE.

SEC. 3. The Executive Committee shall meet after the election of new members to choose their own chairman and secretary, and to divide themselves into sub-committees of three each, as follows, and for the purposes described:

First Division.—Committee of Arrangements.

SEC. 4. The first division of this committee shall act as the Committee of Arrangements, and shall make suitable preparations for the meetings of the Association, of which they shall have the charge. These three shall provide a book for the registration of members or visitors as they arrive, with the place of their residence and hotel address, and shall attend to the general wants of the Association during its session; and it shall be their further duty to secure from the Treasurer a good and sufficient bond.

Second Division.—Credentials and Auditing Committee.

SEC. 5. The second division shall examine and verify the credentials and qualifications of members, including all violations of the Code of Ethics and the Constitution, and shall also be the Auditing Committee for that year.

Third Division.—Committee on Volunteer Essays.

SEC. 6. The third division shall examine all volunteer essays, and before they are read to the Association shall give their approval, in order that time may not be taken up by unworthy or irrelevant matter.

They shall report names of places for the next meeting of the Association.

REPORTS OF SUB-COMMITTEES.

SEC. 7. Each of these sub-committees shall report from time to time, as may be necessary, to the Executive Committee as a whole, who shall decide upon such report if possible; but in case of their inability to decide upon any matter, it shall be brought before the Association for its decision as early as practicable.

MEETINGS OF EXECUTIVE COMMITTEE.

SEC. 8. The Executive Committee shall, if possible, meet for consultation and arrangement of their respective duties on the day preceding the annual session of the Association, and shall meet for the examination of credentials and the reception of papers, and such other business as may properly come before them, at 8 A.M. on the first day of the annual meeting.

CHAIRMAN MAY CONVENE THE COMMITTEE.

SEC. 9. The chairman of the Executive Committee may at his own dis-

cretion summon the members thereof to a meeting at any suitable hour during the sessions of the Association, and at any other time at the request of five members of the committee.

ARTICLE IX.

LOCAL COMMITTEE OF ARRANGEMENTS.

SECTION 1. There shall be appointed by the President annually a committee of three residing at or near the place selected for the next meeting, whose duty it shall be to assist the Executive Committee to procure rooms for meetings, and make such other local arrangements as may be needed for the Association.

PUBLICATION COMMITTEE, HOW APPOINTED.

SEC. 2. The President shall appoint two members of this Association who shall act in conjunction with the Recording Secretary as the Publication Committee. The committee shall be authorized to employ a competent reporter to furnish an accurate report of the proceedings of each meeting.

INSTRUCTIONS TO THE PUBLICATION COMMITTEE.

SEC. 3. The Publication Committee shall superintend the publication and distribution of such portions of the transactions as the Association may direct, or the committee judge to be of sufficient value. They shall specify in the annual report of this committee the character and cost of the publications of the Association during the year, and the number of copies still on hand.

SEC. 4. Any report or other paper, to be entitled to publication in the volume of the transactions for the year in which it shall be presented to the Association, must be placed in the hands of the Publication Committee within twenty days after the close of the annual session, and must also be so prepared that the proof sheets furnished the authors shall be returned to the committee without material alteration or addition.

SEC. 5. Every paper received by this Association, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published for its benefit.

DISCLAIMER.

SEC. 6. The Publication Committee is hereby instructed to print at the beginning of each volume of the transactions the following disclaimer,—viz, "The National Dental Association, although formally accepting and publishing the reports of the various Sections and the essays read before the Association, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when otherwise decided by special resolution."

ARTICLE X.

QUORUM.

Fifteen members shall constitute a quorum for the transaction of business in this Association.

ARTICLE XI.

SUSPENSION OF RULES.—THREE-FOURTHS TO VOTE.

The regular order of business may be temporarily suspended by a three-fourths vote of all the members present, for the consideration of a specific subject, upon the completion of which the regular order shall be at once resumed.

ARTICLE XII.

TIME AND PLACE OF MEETINGS.

SECTION 1. The regular meetings of this Association shall be held annually on the first Tuesday after the last Saturday in August, or at such time as shall be determined by ballot of the Association.

SEC. 2. The place of meeting shall be determined each year by vote of the Association, except that the place of meeting shall be in the West in 1898, in the East in 1899, and in the South in 1900, and thereafter in the order named, meeting in each section every third year.

SEC. 3. For the purposes of this Association, the United States shall be divided into three divisions, to be called The East, The South, and The West.

The East shall include New England, New York, New Jersey, Pennsylvania, Ohio, Indiana, lower peninsula of Michigan, and Ontario.

The South shall include Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Kentucky, Tennessee, Arkansas, Oklahoma, and Indian Territory.

The West shall include Illinois, Missouri, Wisconsin, upper peninsula of Michigan, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Montana, Wyoming, Colorado, Idaho, Utah, Washington, Oregon, Nevada, California, Arizona, New Mexico, and Alaska.

ARTICLE XIII.

ORGANIZATION OF SECTIONS.

SECTION 1. This Association shall be divided into ten Sections, as follows:

1. Prosthetic Dentistry, Metallurgy, and Chemistry, including Crown- and Bridge-Work.
2. Dental Education, Literature, and Nomenclature.
3. Operative Dentistry.
4. Histology and Microscopy.
5. Materia Medica and Therapeutics.
6. Physiology and Etiology.
7. Anatomy, Pathology, and Surgery.
8. Hygiene and Prophylactic Dentistry.
9. Orthodontia.
10. Clinics.

SEC. 2. It shall be the duty of each member to identify himself with one or more of the above-named Sections, and he shall inform the Recording

Secretary of his choice at the time of joining the Association. At the close of the morning session of the second day of the annual meeting, the roll of permanent members in good standing shall be called for the annual reorganization of the Sections.

SEC. 3. The Secretary shall assign members to the Sections in which they are expected to work if they shall fail to make their own choice.

SEC. 4. It shall be the duty of the Recording Secretary, immediately at the close of the morning session of the second day, to present lists of the names of each Section, as a basis for the organization of the Sections.

SEC. 5. The officers of each Section shall be a chairman and secretary, who shall be appointed by the President upon nomination by the Executive Committee, and shall be members known to be capable and interested in the performance of the duties of the offices.

SEC. 6. The chairman of each Section shall preside at all of its meetings; shall exercise general supervision over the business, and shall see that the labors of his Section are conducted in the manner calculated to secure the best results. The chairman, and such other member or members as the Section shall select, shall prepare and read at the annual meeting of the Association next ensuing a paper or papers on the advances and discoveries of the past year in the branches included in the Section. The reading of such papers shall not together occupy more than forty minutes.

SEC. 7. The several Sections shall meet at 10 A.M. on the morning of the first day of the annual meeting of the Association.

SEC. 8. For the information of all members, a list of the members of each Section shall be published in the Transactions of each year.

SEC. 9. The reports of the Sections shall be called by the President in consecutive order, beginning each succeeding year one number higher than on the preceding year, and no Section having been called and passed shall be again heard until all others have been called.

ARTICLE XIV.

BRANCHES.

SECTION 1. For the wider diffusion of the benefits of this Association, the members of each division may form themselves into one or more separate bodies, to be styled "Branches."

POWERS AND OBLIGATIONS.

SEC. 2. Branches shall have such powers and privileges, and be subject to such obligations, as shall be determined upon from time to time by the National Association in annual meeting.

GOVERNMENT.

SEC. 3. Each branch shall be free to hold meetings and to govern itself as its members shall think fit, but no branch law shall be valid which, in the opinion of the National Association, may contravene any fundamental law of the Association.

EXPENSES.

SEC. 4. Each branch shall pay its own expenses, and no branch shall be deemed for any purpose the agent of the Association, or have power to incur any obligation in its behalf.

PROCEEDINGS.

SEC. 5. Each branch shall furnish a copy of its proceedings, including papers and discussions, for publication with the Transactions of the National Association.

DELEGATES.

SEC. 6. Each branch may receive delegates from societies within its division upon the same conditions as the National Association, and which shall have the same standing in the National Association as though admitted directly from the State societies.

DUES.

SEC. 7. The annual dues of members attending the branches shall be paid to the branch treasurer. Two-fifths of the dues may be retained for the benefit of the branch. The remaining three-fifths shall be paid over to the Treasurer of the National Association.

SEC. 8. The annual meeting of any branch shall be omitted whenever the annual session of the National Association shall be held in its division.

RULES OF ORDER.

1. On the arrival of the hour of meeting, the President shall take the chair, call to order, and announce that the meeting is open for business.

2. No motion or speech shall be in order until the mover or speaker shall have been recognized and assigned the floor by the chair, nor shall a motion be open for debate until seconded and stated by the chair.

3. No one shall be permitted to address the Association before giving his name and residence, which shall be distinctly announced from the chair; nor shall he speak more than twice, nor longer than fifteen minutes in all, unless by consent of the Association.

4. At the request of any member a motion shall be put in writing.

5. At the request of five members a question shall be divided, or the yeas and nays ordered.

6. When a question is under debate no other motion shall be in order, except, first, to adjourn; second, to lay on the table; third, the previous question; fourth, to postpone; fifth, to commit; sixth, to amend; and these motions shall take precedence in the order here stated.

7. The previous question, and the motions to adjourn, to lay on the table, and to postpone shall be decided without debate.

8. A motion to adjourn shall always be in order, but no member can make such a motion while another is speaking or while a vote or ballot is being taken.

9. A second amendment to the main question shall not be in order until the first is disposed of, nor shall there be an amendment of an amendment to an amendment.

10. After a motion has been seconded and stated by the chair, it shall not be withdrawn without the consent of the Association.

11. No member shall interrupt another while speaking, except to raise a point of order.

12. When called to order, a member shall sit down until the point of order is decided by the chair, or, in case of appeal, by the Association. If the point of order be sustained, the member can proceed in order by the consent of the Association.

13. Every member shall vote upon a question unless excused by the Association.

14. When any motion, except to adjourn, has been rejected, it shall not be renewed without unanimous consent.

15. Any member who on a question voted in the majority may move a reconsideration of that question; but if that motion shall be lost or laid upon the table, it shall not be renewed without unanimous consent.

16. The President may vote with the members upon all questions, but having so voted shall not give the casting vote in case of a tie.

17. Motions for filling blanks shall be put in the order in which they are moved.

18. On a division, or in voting by yeas and nays, any member may change his vote before the result is declared.

19. These rules may be suspended by unanimous consent.

ORDER OF BUSINESS.

1. Meeting of the Executive Committee, filling of vacancies therein, examination of credentials, and payment of dues, 8 A.M.

2. Meetings of the Sections at 10 A.M.

3. Organization of the Association at 11 A.M.

4. Calling the roll of qualified members.

5. Reading of the minutes, and action thereon.

6. Reports of officers, special committees, and miscellaneous business.

7. The reading and consideration of the stated annual reports from the Sections, together with volunteer papers upon the same subjects in their consecutive order.

In 1898,	commencing	with	Section	1
1899,	"	"	"	2
1900,	"	"	"	3
1901,	"	"	"	4
1902,	"	"	"	5
1903,	"	"	"	6
1904,	"	"	"	7
1905,	"	"	"	8
1906,	"	"	"	9
1907,	"	"	"	10
1908,	"	"	"	1

8. Report of Executive Committee.

9. Balloting for the place of next annual meeting.

10. Election of officers and three members of Executive Committee.
11. Instructions to the permanent committees.
12. Unfinished, new, and miscellaneous business.
13. Reading of minutes.
14. Installation of officers.
15. Final reading of minutes.
16. Adjournment.

AMENDMENTS.

The Constitution, Rules of Order, and Order of Business of this Association may be altered or amended at any annual session by unanimous consent of the members present, providing notice has been given in writing at a previous meeting of the annual session at which the amendment is proposed; or by a vote of two-thirds of the members present, providing notice of the alteration or amendment has been given in writing at a previous annual session.

STANDING RESOLUTIONS.

The following standing resolutions are in force at this time:

1. *Resolved,* That a paper presented to the Committee on Voluntary Essays, and by them considered and returned to the writer with notification that the said paper is not accepted, cannot afterward be read before the Association unless it is made the special order by resolution adopted.

2. *Resolved,* That this Association discountenances the giving of banquets, excursions, entertainments, etc., by local professional societies or individuals, either during or at the close of our annual meetings.

3. *Resolved,* That it is unprofessional to use on cards or signs anything except name, title, and address.

4. *Resolved,* That this Association now in session direct that Sections belonging thereto shall in the future be prohibited from inviting individuals who are violating the Code of Ethics to hold clinics, or to give other exhibitions before this body.

5. *Resolved,* That two general addresses be delivered annually, on the second and third days' meetings, on some general topics of interest to the whole profession, the subjects to be selected by the third division of the Executive Committee, the first division of the Executive Committee to nominate the essayists annually.

6. *Resolved,* That a Standing Committee of three be appointed, to be known as the Committee on Terminology, whose duty it shall be to prepare and submit a carefully prepared report at each annual meeting of this Association.

7. *Resolved,* That this Association believes the conferring of honorary degrees in dentistry to be detrimental to the profession of dentistry, and hereby expresses its disapprobation of the practice.

8. *Resolved,* That a committee of three be appointed by the chair to cooperate with the Army Medical Museum and Library managers in enriching its stores of dental literature and specimens, especially by appealing to dental societies and individual members of the dental profession for assistance.

9. *Resolved,* That the National Dental Association condemns the use of secret preparations known as "*local anesthetics,*" as well as all other secret preparations.

10. *Resolved,* That the secretary or other officer of each society sending delegates to this Association is expected to make a general report of the work done by the society he represents during the year, giving the subjects of the papers read before them and digests of the same, and to send reports to the Secretary of this Association at least three weeks before the date of each annual meeting; the reports to be forwarded to the chairman of the Section to which they belong.

11. *Resolved,* That any member of the dental profession who has been in reputable practice for a period of fifty years may be elected to permanent membership in the Association without payment of dues, and any member of this Association who has been in practice for a like period shall have his dues remitted thereafter by presenting the fact to the Treasurer of the Association.

12. *Resolved,* That lists of the ex-Presidents of the American Dental Association and of the Southern Dental Association shall be published annually in the Transactions of the National Dental Association, and that all members and officers hold the same relation to the National Dental Association that they did to the former associations.

MEMBERS

OF THE

NATIONAL DENTAL ASSOCIATION.

List of members as certified by the Treasurers of the American Dental Association and Southern Dental Association, in accordance with the resolution adopted at the first day's session, and which reads as follows:

Resolved, That the Treasurer of this Association be directed to request the Treasurers of the American Dental Association and of the Southern Dental Association to furnish him with the lists of the permanent members of their respective Associations, and he is hereby directed to add the names so furnished him to the Constitution of this Association as set forth in the provisions of membership in Article III, Section 5, of the Constitution; and be it further

Resolved, That said act of the Treasurer shall be legal and binding the same as if the signatures had been attached by the persons themselves.

ALEXANDER, C. L., (S.D.A.)	Charlotte, N. C.
ALLEN, H. J., (A.D.A.)	421 H st., N. E., Washington, D. C.
ALLEN, T. M., (S.D.A., A.D.A.)	Box 718, Birmingham, Ala.
ALLEN, S. W., (S.D.A.)	Tampa, Fla.
AMBLER, H. L., (A.D.A.)	176 Euclid ave., Cleveland, O.
ARRINGTON, W. T., (S.D.A.)	Main st., Memphis, Tenn.
AUGSPATH, L., (S.D.A.)	Little Rock, Ark.
AYERS, J. W., (A.D.A.)	208 Favetteville st., Raleigh, N. C.
BAKER, BOYD H., (A.D.A.)	605 King st., Wilmington, Del.
BARBER, L. L., (A.D.A.)	311 Summit st., Toledo, O.
BARNES, HENRY, (A.D.A.)	New England Bldg., Cleveland, O.
BARRETT, W. C., (A.D.A.)	208 Franklin st., Buffalo, N. Y.
BAUER, JOS., (S.D.A.)	New Orleans, La.
BEACH, H. E., (S.D.A.)	Clarksville, Tenn.
BEADLES, E. P., (S.D.A.)	Danville, Va.
BENTON, J. H., (S.D.A.)	New Berne, N. C.
BETHEL, L. P., (A.D.A.)	Kent, Ohio.
BILLMEYER, U. D., (S.D.A.)	Chattanooga, Tenn.
BISHOP, J. ADAMS, (A.D.A.)	30 W. 48th st., New York, N. Y.
BOGUE, E. A., (A.D.A.)	63 W. 48th st., New York, N. Y.

BOICE, ALONZO,* (A.D.A.)	1612 Vine st., Philadelphia, Pa.
BOLLINGER, P. S., (A.D.A.)	5th and Ludlow sts, Dayton, O.
BOOZER, J. E., (S.D.A.)	Columbia, S. C.
BOSWELL, H. H., (A.D.A.)	322 Franklin st., Buffalo, N. Y.
BRABSON, B. D., (S.D.A.)	Knoxville, Tenn.
BRACKETT, C. A., (A.D.A.)	102 Truro st., Newport, R. I.
BROCKETT, C. T., (S.D.A.)	Atlanta, Ga.
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BROPHY, TRUMAN W., (A.D.A.)	1405 Champlain Building, Chicago, Ill.
BROWN, A. J., (A.D.A.)	912 14th st., N. W., Washington, D. C.
BURKHART, H. J., (A.D.A.)	Batavia, N. Y.
BUTLER, C. S. (A.D.A.)	680 Main st., Buffalo, N. Y.
CANADAY, J. W., (A.D.A.)	383 State st., Albany, N. Y.
CARPENTER, L. D., (S.D.A.)	Atlanta, Ga.
CARR, ELLEN R., (A.D.A.)	26 Pratt st., Hartford, Conn.
CARR, I. N., (S.D.A.)	Durham, N. C.
CASE, C. S., (A.D.A.)	1212-15 Champlain Bldg., Chicago, Ill.
CASSIDY, J. S., (A.D.A.)	732 Madison ave., Covington, Ky.
CATCHING, B. H., (S.D.A.)	33½ Whitehall st., Atlanta, Ga.
CHASE, EMMA EAMES, (A.D.A.)	3334 Washington ave., St. Louis, Mo.
CHASE, W. G., (A.D.A.)	3321 N. 15th st., Philadelphia, Pa.
CHITTENDEN, C. C., (A.D.A.)	21 W. Main st., Madison, Wis.
CLAPP, DWIGHT M., (A.D.A.)	130 Commonwealth ave., Boston, Mass.
CLIFTON, W. R., (S.D.A., A.D.A.)	Waco, Texas.
COGAN, WM. N., (A.D.A.)	1754 M st., N. W., Washington, D. C.
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COOK, C. D., (A.D.A.)	133 Pacific st., Brooklyn, N. Y.
COOK, S. B., (S.D.A.)	Loneman Bldg., Chattanooga, Tenn.
COOK, W. H., (S.D.A.)	Denton, Texas.
CORLEY, J. P., (S.D.A.)	Greensboro, Ala.
COWARDIN, L. M., (S.D.A., A.D.A.)	407 E. Main st., Richmond, Va.
CRADDOCK, T. E., (S.D.A.)	Lynchburg, Va.
CRAWFORD, J. Y., (S.D.A., A.D.A.)	Jackson Bldg., Nashville, Tenn.
CRENSHAW, WM., (S.D.A.)	Grant Bldg., Atlanta, Ga.
CROUSE, J. N., (A.D.A.)	2231 Prairie ave., Chicago, Ill.
CULVER, M. B., (A.D.A.)	1529 Locust st., Philadelphia, Pa.
CURTIS, G. L., (A.D.A.)	7 W. 58th st., New York, N. Y.
CUSHING, GEORGE H., (A.D.A.)	31 Washington st., Chicago, Ill. (Permanent, without dues, 1898.)
CUSTER, L. E., (A.D.A.)	Dayton, Ohio.
DALE, J. A., (S.D.A.)	217½ N. Summer st., Nashville, Tenn.
DARBY, E. T., (A.D.A.)	1513 Walnut st., Philadelphia, Pa.
DAVENPORT, I. B., (A.D.A.)	30 Rue de l'Opera, Paris, France.
DAVIL, J. W., (S.D.A.)	Mexia, Texas.
DEWEY, S. B., (A.D.A.)	29 Euclid ave., Cleveland, Ohio.

* Deceased February 2, 1898.

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DONNALLY, WILLIAMS, (A.D.A.)	1022 14th st., Washington, D. C.
DOTTERER, L. P., (S.D.A.)	98 Broad st., Charleston, S. C.
DOUGLASS, B., (A.D.A.)	Cor. College and Oneida sts., Appleton, Wis.
DOYLE, B. OSCAR, (A.D.A.)	206 West Chestnut st., Louisville, Ky.
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DUNN, CHARLES E., (A. D. A.)	921 2d st., Louisville, Ky.
DUNN, J. AUSTIN, (A.D.A.)	901 Marshall Field Bldg., Chicago, Ill.
EATON, A. R., (S.D.A.)	Elizabeth, N. J.
EDMONDS, NELSON D., (A.D.A.)	Cor. Wood and Harrison sts., Chicago, Ill.
EGGLESTON, EDWARD, (S.D.A.)	Richmond, Va.
ELLIOTT, W. ST. GEORGE, (A.D.A.)	651 Madison ave., New York, N. Y.
ESSIG, CHARLES J., (A.D.A.)	1700 Locust st., Philadelphia, Pa.
EUBANK, GEORGE, (S.D.A.)	Birmingham, Ala.
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EWALD, W. H., (S.D.A.)	Portsmouth, Va.
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FINLEY, M. F., (S.D.A., A.D.A.)	1928 I st., N. W., Washington, D. C.
FINNEY, W. B., (S.D.A.)	Baltimore, Md.
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FOSTER, S. W., (S.D.A.)	62 Inman Block, Atlanta, Ga.
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FRIEDRICHS, G. J., (S.D.A., A.D.A.)	641 St. Charles st., New Orleans La.
FRINK, C. H., (S.D.A.)	Fernandina, Fla.
FULLER, A. H., (A.D.A.)	S. E. cor. Eighth and Locust sts., St. Louis, Mo.
FUNDENBERG, W. F., (A.D.A.)	Lewis Block, Pittsburg, Pa. (Permanent without dues.)
FUNDENBERG, W. H., (A.D.A.)	Lewis Block, Pittsburg, Pa.
GASKILL, J. HOWARD, (A.D.A.)	1629 Walnut st., Philadelphia, Pa.
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GILBERT, S. E., (A.D.A.)	1627 Columbia ave., Philadelplia, Pa.
GILMER, THOMAS L., (A.D.A.)	126 State st., Chicago, Ill.
GILSON, A. H., (A.D.A.)	7 Temple Place, Boston, Mass.
GODDARD, C. L., (A.D.A.)	406 Sutter st., San Francisco, Cal.

GOLDSMITH, S. L., (A.D.A.)	129 E. 60th st., New York, N. Y.
GOODWIN, N. J., (A.D.A.)	275 Main st., Hartford, Conn.
GRANGER, C. U., (S.D.A.)	Goldsboro, N. C.
GRANT, W. E., (A.D.A.)	419 W. Chestnut st., Louisville, Ky.
GREENBAUM, LEO, (A.D.A.)	1435 Girard ave., Philadelphia, Pa.
GREGORY, FRANK G., (A.D.A.)	7 West Park st., Newark, N. J.
GRINDALL, CHARLES S., (S.D.A.)	Baltimore, Md.
GRISWOLD, W. E., (A.D.A.)	Mack Block, Denver, Col.
GROSS, O. J., (A.D.A.)	77 Ferry st., Schenectady, N. Y.
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HALEY, META T., (A.D.A.)	West Chester, Pa.
HALL, J. A., (S.D.A.)	Collinsville, Ala.
HALLER, J. V., (S.D.A.)	Wytheville, Va.
HARDY, C. S., (A.D.A.)	Summit, N. J.
HARDY, GEO. E., (S.D.A.)	Baltimore, Md.
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